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United States Department of Agriculture

Rural Electrification Administration

# Report of the Administrator

COMPLETED

ORIGINAL

# REPORT OF THE ADMINISTRATOR

## Rural Electrification Administration

## Fiscal Years 1984 and 1985

United States Department of Agriculture

Rural Electrification Administration

Washington, D.C. 20250

June 10, 1986

Honorable Richard E. Lyng
Secretary of Agriculture
U.S. Department of Agriculture
Washington, D.C. 20250

Dear Mr. Secretary:

This report describes the activities of the Rural Electrification Administration during fiscal years 1984 and 1985 and complies with Section 10 of the Rural Electrification Act of 1936 as amended.

May we have your approval to transmit this report to Congress?

Respectfully submitted,

Harold V. Hunter
Administrator

APPROVED: _____
Secretary of Agriculture
Peter C. Myers

50 years of Rural Electrification

# INTRODUCTION

Over the years REA programs have been very successful. By the end of fiscal year 1985, 99 percent of all farms had electricity and 96 percent had telephone service.

The number of consumers and subscribers served also has increased. In the early years, growth was due to service extended for the first time to existing households. More recently, growth has been the result of rapid household formation in rural America, particularly in the Sunbelt and western states. By the end of FY 85, the number of consumers served by REA electric borrowers was about 11 million; the number of subscribers served by REA telephone borrowers was about 5 million.

Overall, utilities that receive financing from REA have developed into strong business organizations although they are not large compared to investor-owned utilities. REA electric borrowers constitute nearly 11 percent of the electric utility industry; and telephone borrowers constitute nearly 5 percent of the telephone utility industry.

The number of electric borrowers has not changed much since about 1950. The small increase that occurred during the last few years is due to the creation of new power supply systems owned by distribution borrowers. In contrast, the number of telephone borrowers increased rapidly during the first 10-15 years of the program and continues to increase. This is due in large part to formerly non-REA telephone companies requesting financial assistance to meet the demand for extending telephone service in rural areas.

During FY 84 and 85, REA continued efforts begun in 1981 to encourage the internal strength and financial soundness of borrowers while searching for ways to trim the costs of Government.

By and large, the vast majority of borrowers are in sounder financial condition than they have been in recent years. In the electric program, this improvement has been achieved despite overcapacity in many rural areas and the highly expensive construction delays that have plagued the industry since 1979. In the telephone program, this improvement has been achieved despite chaotic competition in an unprecedented deregulated environment where changing institutional structures and technological advances increase the level of uncertainty.

Virtually everyone in rural areas has reliable electric service. Moreover, after adjusting for inflation, the price of electricity per kilowatt hour (kWh) on borrower systems is less than it was 20 years ago. More than 85 percent of the subscribers of borrower telephone systems have private-line, one-party service.

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## GENERAL

The improving financial standing of borrowers reflects a pattern of change that has been occurring since 1980.

Electric Borrowers. For example, in the electric program, trends show that borrowers have improved their financial standing with respect to asset equity, times interest earned ratio (TIER), operating revenue, margins (net income), and general funds as a percent of total plant. Overall, the dollar value of borrowers' plant is increasing.

Table 1. Median Value of Plant: REA Distribution Borrowers

| Year | Amount |
|---|---|
| 1980 | $10.8 million |
| 1981 | $11.6 million |
| 1982 | $12.4 million |
| 1983 | $13.1 million |
| 1984 | $14.2 million |

A similar pattern is shown for borrowers' increased equity in assets, which shows not only that business is doing well but that strength exists to deal with any future difficulties systems might encounter.

Table 2. Median Equity: REA Distribution Borrowers

| Year | Amount |
|---|---|
| 1980 | 31.39% |
| 1981 | 31.11% |
| 1982 | 31.87% |
| 1983 | 33.11% |
| 1984 | 34.89% |

REA's calculation of the composite TIER for all borrowers shows a similar improvement, which means that borrowers have adequate resources to pay for expected interest costs.

Table 3. Composite TIER: REA Distribution Borrowers

| Year | Amount |
|---|---|
| 1981 | 2.09% |
| 1982 | 2.18% |
| 1983 | 2.46% |
| 1984 | 2.78% |

Operating revenues improved substantially since 1981.

Table 4. Total Operating Revenue: REA Distribution Borrowers

| Year | Amount |
|---|---|
| 1981 | $ 7.7 billion |
| 1982 | $ 9.0 billion |
| 1983 | $10.1 billion |
| 1984 | $11.1 billion |

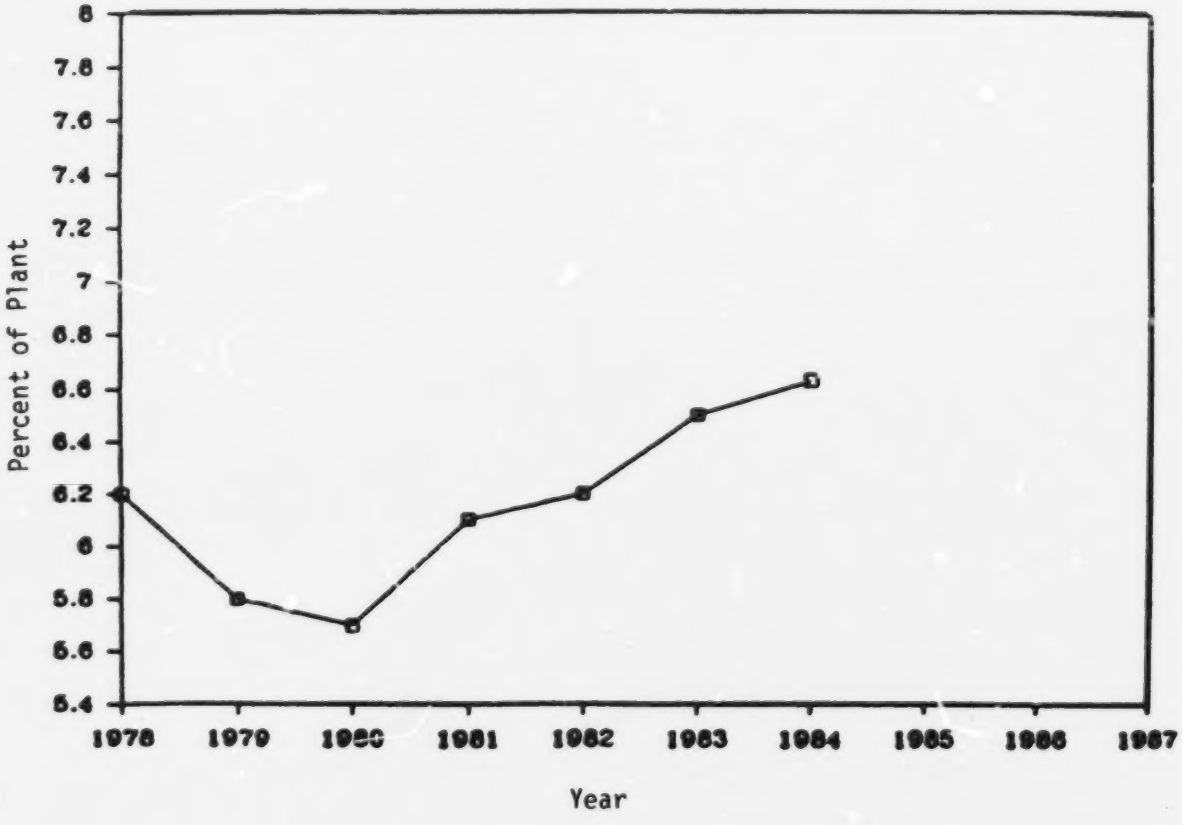
Borrower margins have more than doubled.

Table 5. Composite Margins (Net Income): REA Distribution Borrowers

| Year | Amount |
|---|---|
| 1981 | $413.0 million |
| 1982 | $515.0 million |
| 1983 | $701.0 million |
| 1984 | $884.0 million |

Since 1980 there also has been an increase in general funds as a percentage of total plant. The following graph reflects how this ratio has changed since 1978.

Figure 1. General Funds as Percent of Total Plant: REA Distribution Borrowers 1984

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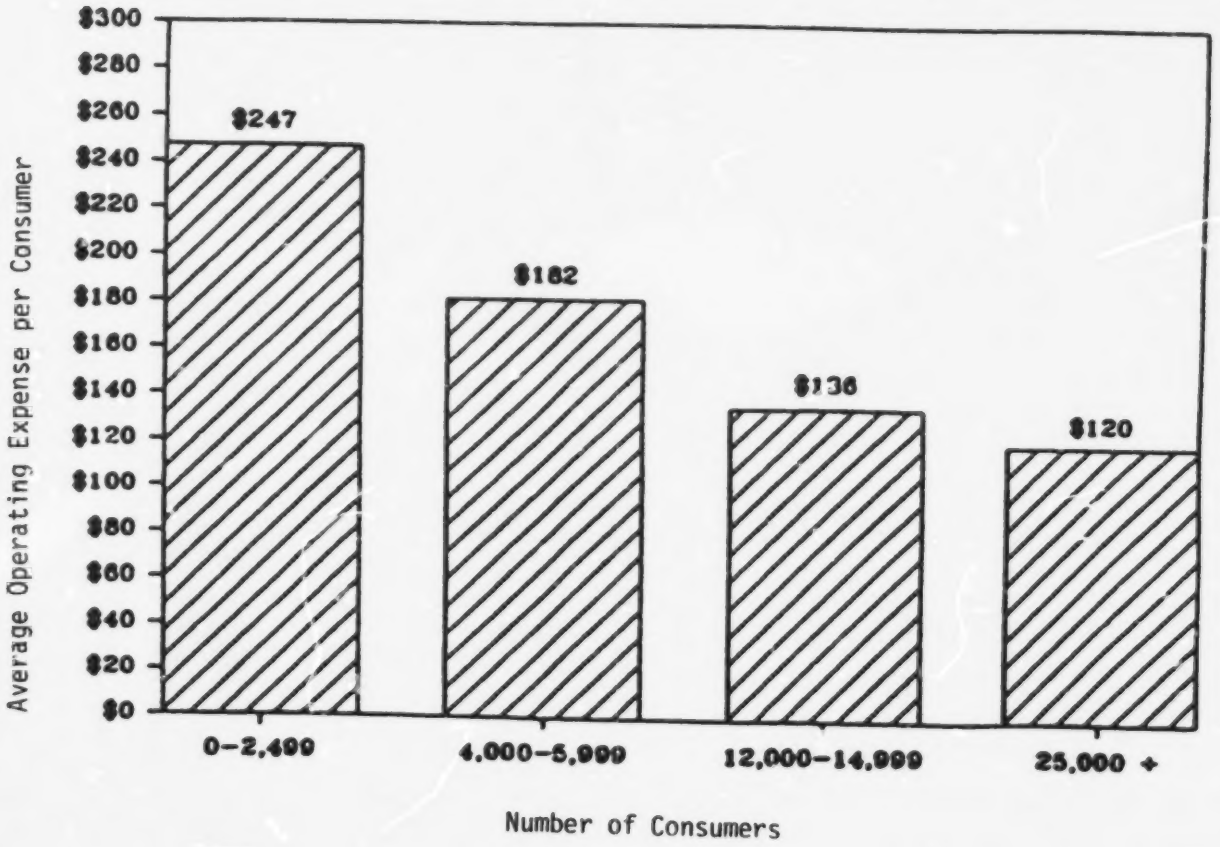
REA also is interested in economies of scale available to borrowers based on the size of their distribution systems. One aspect noted is that the average operating expense per consumer for systems with 25,000 or more consumers is less than half the cost paid by the smallest systems. The following graph shows REA calculations using 1984 data.

Figure 2. Average Operating Expense Per Consumer by System Size of Distribution Borrowers 1984




Not only has the financial standing of electric borrowers improved, fewer are experiencing financial difficulty. In FY 84, only 20 borrowers had deficits, the first time in the history of the program that so few borrowers had experienced net income loss.

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Telephone Borrowers. In the telephone program, trends show a similar pattern. The value of borrower telephone plant has increased each year since 1980.

Table 6. Total Value of Plant Owned by REA Telephone Borrowers

| Year | Amount |
|---|---|
| 1980 | $ 7.4 billion |
| 1981 | $ 8.0 billion |
| 1982 | $ 8.9 billion |
| 1983 | $ 9.5 billion |
| 1984 | $10.2 billion |

Operating revenues also have increased.

Table 7. Total Operating Revenues: REA Telephone Borrowers

| Year | Amount |
|---|---|
| 1980 | $1.8 billion |
| 1981 | $2.0 billion |
| 1982 | $2.4 billion |
| 1983 | $2.6 billion |
| 1984 | $2.9 billion |

The trend in net income shows substantial improvement also. The net income (regulated) of all borrowers since 1980 is as follows.

Table 8. Net Income: REA Telephone Borrowers

| Year | Amount |
|---|---|
| 1980 | $216 million |
| 1981 | $262 million |
| 1982 | $314 million |
| 1983 | $369 million |
| 1984 | $446 million |

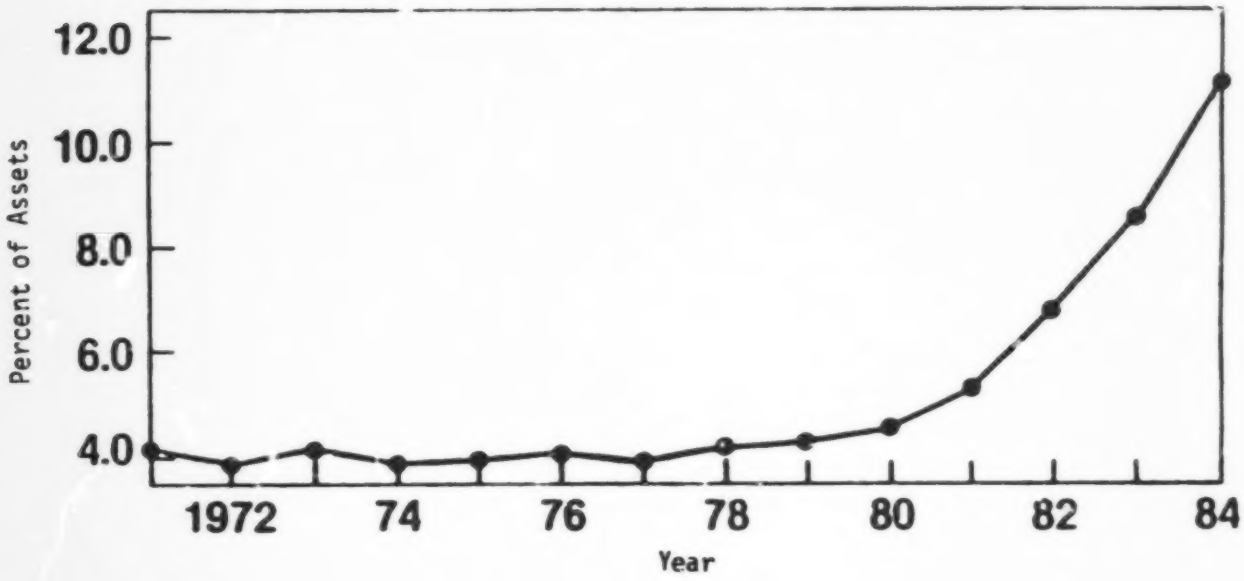
Even the ratio of cash, working funds and other current assets to current liabilities improved during the first half of this decade:

Table 9. Ratio of Current Assets to Current Liabilities: REA Telephone Borrowers

| Year | Amount |
|---|---|
| 1980 | 150% |
| 1981 | 170% |
| 1982 | 195% |
| 1983 | 241% |
| 1984 | 255% |

Much of this is due to the fact that general funds levels for telephone borrowers have increased.

Figure 3. Composite General Funds Level as Percent of Total Assets: REA Telephone Borrowers




REA Administration. The costs of managing the REA loan program have been reduced. During FY 84-85, the number of REA employees dropped from 639 to 596, a reduction of about 7 percent. REA consolidated office space by reducing the square footage assigned to each employee, a savings of about $200,000 in both fiscal years. REA also improved its internal control processes, and all levels of management were being trained in internal management controls.

Fewer Publications. REA saved nearly $156,000 in FY 84 by improving its publication printing and distribution procedures. The savings in FY 85 is estimated at $176,000. For example, REA developed an automatic inventory reorder system which shows trends in usage while reducing the waiting lists of those who want publications. Bulk distribution is eliminated. Groups wishing to distribute multiple copies of REA publications must reproduce the single copy REA will send. Many publications are no longer free and must be purchased from the Superintendent of Documents. Mailing lists also have been reduced.

Overall. The period FY 84-85 has been devoted to making REA a better managed and stronger vehicle for administering the rural electrification and telephone programs. Special achievements during the period were:

- Leadership of area offices was rotated in the telephone program during FY 84 and in the electric program during FY 85. Rotation has been a step toward greater management effectiveness by offering management new challenges and giving the systems that borrow from REA the advantage of experience gained in other areas.

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- Program management has been improved in a variety of ways as a result of continual emphasis on management effectiveness and streamlined procedures.

REA continued the administrative improvements begun in the early 1980s. Supplemental loans continued to bear the same maturity date and to be repaid in the same manner as concurrent REA loans. Repayments on new loans continued to be required monthly instead of quarterly as was the case in the past. These more frequent payments have improved the cash flow of the Rural Electrification and Telephone Revolving Fund and encouraged better cash management among borrowers. The period in which borrowers can defer repayment of principal was reduced from 3 years to 2.

Tables 10 and 11 reflect the financial standing of REA.

REA's collection of principal and interest by the end of FY 85 amounted to $6.9 billion. The status of delinquencies as of September 30, 1985, was:

-REA electric borrowers, $98 million;
-REA telephone borrowers, $20,500;
-Rural Telephone Bank borrowers, 0; and
-Rural Communication Development Fund borrowers, $688,000.

The total delinquency of guaranteed electric loan installments was $121 million; however, loan principal of $951 million was declared in default and is due and payable. No guaranteed telephone loans were delinquent. Actual REA losses since 1936 have amounted to $44,478 although a foreclosure occurred in FY 85 and is in litigation. Payments of principal and interest are shown in Table 12.

Tables 13 through 19 describe various aspects of REA's financial history.

Accounting. REA accountants conducted 524 audits of borrowers' records during FY 84, an increase of 30 percent over FY 83. A total of 617 audits were completed in FY 85. These increases were made possible by the assignment of certain nonloan fund audit tasks to certified public accountants (CPAs). REA's accountants have been working with the CPAs who audit borrowers' books so as to place as much reliance as possible on their work.

During both years REA reviewed CPA working papers to evaluate their compliance with REA requirements. REA reviews the working papers selectively, and provides each CPA with a comprehensive report of REA's evaluation. If the review indicates need, a follow-up visit with the CPA is scheduled. This program has been successful in increasing compliance with REA audit requirements and has alerted REA to problem areas.

During FY 85 REA conducted six seminars for 695 CPAs and other personnel. In FY 84 REA personnel visited 393 CPAs. Among the technical matters discussed in these meetings is the peer review system for CPAs which REA will require beginning in 1986. The peer review system has been chosen because it assures that a firm has quality control in accounting and auditing practices and complies with standards accepted by all CPAs.

Table 10. Statement of Financial Condition
FY 84-85
($ in thousands)

Assets

| | 1984 | 1985 |
|---|---|---|
| Loans and Interest Receivable | | |
| Loans a/ b/ c/ | $10,163,119 | $11,283,909 |
| Interest Accumulated | 18,117 | 14,536 |
| Interest Current d/ | 46,868 | 52,407 |
| Accounts Receivable, REA Borrowers' Guaranteed Loan Installment Payments | 2 | 196,370 |
| | $10,228,106 | $11,547,222 |
| Less: Allowance for Possible Losses | 31,878 | 418,659 |
| Net Loans and Interest Receivable | $10,196,228 | $11,128,563 |
| Investment in Rural Telephone Bank | 390,000 | 420,000 |
| Cash on Deposit with U.S. Treasury | 4,822 | 4,039 |
| Miscellaneous Receivable | 31 | 41 |
| Equipment (Net of 513 & 483 Depreciation) | 1,175 | 1,329 |
| Total Assets | $10,592,256 | $11,553,972 |

Liabilities and Government Equity

| | | |
|---|---|---|
| Accounts Payable and Other Accrued Liabilities | $ 1,755 | $ 2,634 |
| Accrued (Unfunded) Liability for Annual Leave | 1,907 | 1,885 |
| Guaranteed Loans, FFB Default | -0- | 951,329 |
| Loans Payable to U.S. Treasury e/ | 7,864,742 | 7,864,742 |
| Guaranteed Loan Payments Due FFB | 6,769 | 53,133 |
| Total Liabilities f/ | 7,875,173 | $ 8,873,723 |
| Government Equity Net | | |
| Net Appropriations | | |
| Administrative Funds | $ 570,410 | 598,565 |
| Capitalization of Rural Telephone Bank | 390,000 | 420,000 |
| Loan Funds | 142,620 | 142,620 |
| Reimbursement for Loan Operation Losses | 197,862 | 413,826 |
| Cost Paid by Treasury g/ | 1,842,982 | 2,150,145 |
| Net Difference between Income and Expense | 144,043 | (446,049) |
| Net Administrative Expenses | (570,834) | (598,858) |
| Total Government Equity | 2,717,083 | 2,680,249 |
| Total Liabilities and Government Equity | $10,592,256 | $11,553,972 |

a/ Not including advance payments by borrowers and CBOs.
b/ Not including unadvanced loan commitments.
c/ Including defaulted insured and guaranteed loans receivable referred to the Department of Justice for foreclosure.
d/ Including interest on defaulted insured loans and guaranteed loan installment payments receivable.
e/ Under section 302 of the Rural Electrification Act, these loans accrue no interest.
f/ Does not include contingent liability of the REA guarantee program.
g/ Imputed interest on loans.

Table 11. Statement of REA Income and Expense
Inception through 1985
($ in thousands)

Lending Operations

| | Fiscal Year 1984 | Fiscal Year 1985 | Cumulative through 1985 |
|---|---|---|---|
| Interest Income | $355,135 | $382,336 | $5,098,563 |
| Expenses | | | |
| Interest Expense a/ | 578,792 | 585,646 | 5,125,909 |
| Provision for Possible Losses on Loans | 1,738 | 386,781 | 418,659 |
| Losses on Foreclosed Loans | 0 | 0 | 44 |
| Total | $580,530 | $972,427 | $5,544,612 |
| Net Difference (Loss) | $(225,395) | $(590,091) | $(446,049) |

Administrative Operations

| | | | |
|---|---|---|---|
| Net Salaries and Expenses Provided through Appropriations | $27,359 | $27,928 | $598,858 |

a/ Interest was charged from inception to June 30, 1972, at statutory rates on outstanding loans to the Administrator from the Secretary of the Treasury for electrification and telephone purposes as required by Section 3(a) of the Rural Electrification Act. Effective June 30, 1972, no interest was due on outstanding loans made pursuant to that section. However, beginning in 1979, imputed interest expense amounting to $307,164 is charged to operations each year until the related loans are paid. Interest on advances made under Section 304(a) since June 30, 1972, is established on a monthly basis as set forth in the law. The interest rate on CBOs is determined at the time of purchase by the Secretary of the Treasury pursuant to Section 6(b) of the Federal Financing Bank Act of 1973.

Table 12. Payments of Principal and Interest on REA Loans
(cumulative totals in millions)

| Fiscal Year | ELECTRIC | | | TELEPHONE | | |
|---|---|---|---|---|---|---|
| | Year-End Advance Payments* | Cumulative Principal Due & Paid | Cumulative Interest Due & Paid | Year-End Advance Payments* | Cumulative Principal Due & Paid | Cumulative Interest Due & Paid |
| 1971.... | $317.1 | $2,097.2 | $1,205.0 | $25.2 | $262.3 | $214.1 |
| 1972.... | 293.5 | 2,267.4 | 1,302.8 | 25.2 | 302.2 | 242.1 |
| 1973.... | 244.2 | 2,446.6 | 1,406.6 | 23.9 | 343.9 | 271.7 |
| 1974.... | 192.5 | 2,628.6 | 1,519.6 | 20.6 | 389.8 | 302.9 |
| 1975.... | 148.2 | 2,827.4 | 1,659.4 | 20.0 | 440.1 | 337.5 |
| 1976.... | 125.6 | 3,038.3 | 1,822.5 | 19.4 | 492.8 | 374.9 |
| 1977.... | 104.7 | 3,323.1 | 2,056.3 | 19.7 | 563.3 | 427.4 |
| 1978.... | 93.8 | 3,574.1 | 2,277.1 | 21.4 | 624.6 | 473.7 |
| 1979.... | 74.1 | 3,842.4 | 2,523.0 | 21.6 | 689.5 | 523.2 |
| 1980.... | 67.0 | 4,127.5 | 2,801.7 | 21.3 | 760.4 | 578.5 |
| 1981.... | 55.9 | 4,425.9 | 3,118.6 | 22.4 | 834.4 | 640.9 |
| 1982.... | 48.5 | 4,736.0 | 3,469.9 | 27.0 | 935.5 | 710.6 |
| 1983.... | 47.6 | 5,054.9 | 3,847.9 | 30.3 | 1,004.1 | 805.6 |
| 1984.... | 50.7 | 5,376.8 | 4,240.4 | 37.1 | 1,097.8 | 892.2 |
| 1985.... | 55.5 | 5,704.8 | 4,658.4 | 44.1 | 1,198.1 | 983.9 |

*Principal payments made ahead of schedule.

Table 13: Cumulative REA Direct and Insured Financing Approved for Electric and Telephone Borrowers
September 30, 1985

| | REA Electric | REA Telephone | RTB |
|---|---|---|---|
| UNITED STATES | $18,607,067,831 | $4,938,184,501 | $2,141,439,869 |
| Alabama | 371,068,006 | 141,116,119 | 88,238,850 |
| Alaska | 689,409,196 | 120,873,000 | 62,748,000 |
| Arizona | 160,883,419 | 39,910,000 | 94,307,483 |
| Arkansas | 580,267,349 | 81,314,326 | 48,177,045 |
| California | 68,904,523 | 84,418,614 | 50,664,600 |
| Colorado | 826,808,997 | 45,608,765 | 23,013,469 |
| Connecticut | --- | --- | --- |
| Delaware | 32,865,881 | --- | --- |
| Florida | 533,621,153 | 42,897,463 | 50,740,200 |
| Georgia | 748,378,712 | 220,249,182 | 126,475,265 |
| Hawaii | --- | --- | --- |
| Idaho | 118,109,683 | 31,412,926 | 10,519,950 |
| Illinois | 429,306,447 | 59,475,105 | 20,396,697 |
| Indiana | 354,042,723 | 94,248,545 | 23,052,750 |
| Iowa | 608,305,725 | 126,081,964 | 42,707,395 |
| Kansas | 483,785,328 | 171,200,573 | 46,235,907 |
| Kentucky | 818,415,180 | 233,635,000 | 41,797,350 |
| Louisiana | 537,305,909 | 88,520,118 | 50,437,800 |
| Maine | 22,004,765 | 29,721,472 | 34,415,850 |
| Maryland | 122,408,500 | 2,051,000 | 2,326,800 |
| Massachusetts | --- | 1,835,000 | 519,750 |
| Michigan | 291,809,812 | 91,072,571 | 63,741,300 |
| Minnesota | 810,003,443 | 229,826,559 | 77,068,428 |
| Mississippi | 465,622,504 | 83,966,604 | 14,853,300 |
| Missouri | 926,868,832 | 178,496,841 | 52,203,795 |
| Montana | 267,947,012 | 160,713,352 | 2,144,100 |
| Nebraska | 458,347,861 | 99,372,666 | 24,159,425 |
| Nevada | 70,028,563 | 7,603,000 | 8,319,150 |
| New Hampshire | 69,528,884 | 11,337,000 | 16,129,050 |
| New Jersey | 11,762,660 | 14,295,000 | 16,554,300 |
| New Mexico | 270,461,517 | 140,654,000 | 3,134,250 |
| New York | 24,022,891 | 41,368,149 | 40,957,875 |
| North Carolina | 512,852,211 | 178,524,323 | 97,614,622 |
| North Dakota | 830,240,332 | 158,972,114 | 14,638,733 |
| Ohio | 328,127,099 | 26,052,571 | 5,259,450 |
| Oklahoma | 773,154,234 | 179,546,377 | 94,666,130 |
| Oregon | 229,571,249 | 54,862,641 | 41,743,301 |
| Pennsylvania | 191,315,329 | 73,922,890 | 183,214,413 |
| Rhode Island | --- | --- | --- |
| South Carolina | 547,977,025 | 172,233,994 | 104,983,320 |
| South Dakota | 407,569,525 | 142,246,695 | 14,995,701 |
| Tennessee | 300,679,033 | 241,059,000 | 57,579,900 |
| Texas | 1,779,506,226 | 402,711,414 | 156,035,554 |
| Utah | 63,152,996 | 33,808,000 | 6,638,100 |
| Vermont | 51,150,918 | 4,785,000 | 8,547,000 |
| Virginia | 334,525,756 | 58,593,00 | 17,997,368 |
| Washington | 183,267,598 | 37,628,489 | 18,932,285 |
| West Virginia | 6,281,633 | 59,174,000 | 16,426,200 |
| Wisconsin | 429,129,125 | 233,976,068 | 139,808,358 |
| Wyoming | 227,114,940 | 12,138,000 | 7,675,500 |
| Puerto Rico | 238,727,000 | 115,677,000 | 15,116,850 |
| Virgin Islands | 430,126 | --- | --- |
| Guam | --- | 57,776,000 | 3,526,950 |
| Mariana Islands | --- | 11,212,000 | --- |

Table 14: Cumulative Loan Guarantee Commitments as of September 30, 1985

| | Electric | Telephone |
|---|---|---|
| UNITED STATES | $32,372,593,434 | $679,454,000 |
| Alabama | 295,358,000 | 11,901,000 |
| Alaska | 249,015,000 | 46,943,000 |
| Arizona | 337,697,000 | 5,000,000 |
| Arkansas | 932,180,947 | 35,744,000 |
| California | --- | 10,396,000 |
| Colorado | 1,490,229,520 | --- |
| Connecticut | --- | --- |
| Delaware | --- | --- |
| Florida | 1,114,869,000 | 76,556,000 |
| Georgia | 3,765,763,278 | 88,241,000 |
| Hawaii | --- | --- |
| Idaho | 130,000 | --- |
| Illinois | 1,065,766,000 | --- |
| Indiana | 2,051,888,000 | --- |
| Iowa | 266,758,000 | 9,700,000 |
| Kansas | 797,147,000 | 20,440,000 |
| Kentucky | 2,977,068,000 | 28,840,000 |
| Louisiana | 3,967,381,000 | 13,651,000 |
| Maine | --- | 1,875,000 |
| Maryland | --- | --- |
| Massachusetts | --- | --- |
| Michigan | 818,369,756 | 2,953,000 |
| Minnesota | 1,285,134,000 | 10,239,000 |
| Mississippi | 723,650,000 | 5,200,000 |
| Missouri | 855,775,080 | 67,770,000 |
| Montana | 11,478,000 | --- |
| Nebraska | --- | --- |
| Nevada | --- | --- |
| New Hampshire | 146,182,000 | --- |
| New Jersey | --- | 3,084,000 |
| New Mexico | 387,682,000 | --- |
| New York | --- | 18,220,000 |
| North Carolina | 1,513,369,600 | 31,158,000 |
| North Dakota | 2,831,938,253 | --- |
| Ohio | 72,110,000 | --- |
| Oklahoma | 637,093,000 | 2,744,000 |
| Oregon | 54,128,000 | 18,228,000 |
| Pennsylvania | 647,908,000 | 43,247,000 |
| Rhode Island | --- | --- |
| South Carolina | 530,136,000 | 7,885,000 |
| South Dakota | 13,828,000 | --- |
| Tennessee | --- | 14,358,000 |
| Texas | 1,021,764,000 | 76,131,000 |
| Utah | 981,136,000 | --- |
| Vermont | 50,726,000 | --- |
| Virginia | 263,000,000 | --- |
| Washington | --- | --- |
| West Virginia | --- | 5,250,000 |
| Wisconsin | 260,359,000 | 23,700,000 |
| Wyoming | 15,576,000 | --- |
| Puerto Rico | --- | --- |
| Guam | --- | --- |

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Table 15. Principal and Interest Due on Debt Obligations of REA Borrowers, 1969-90 a/

| Fiscal Year Ended | Electric Borrowers Amount Due ($ in thousands) Principal | Interest b/ | Total | Telephone Borrowers Amount Due ($ in thousands) Principal | Interest b/ | Total |
|---|---|---|---|---|---|---|
| 09/30/90 | 386,100 | 513,800 | 899,900 | 117,900 | 116,500 | 234,400 |
| 09/30/89 | 372,700 | 500,900 | 873,600 | 114,200 | 116,000 | 230,200 |
| 09/30/88 | 360,600 | 487,400 | 848,000 | 110,500 | 115,200 | 225,700 |
| 09/30/87 | 350,500 | 467,800 | 818,300 | 107,300 | 111,200 | 218,500 |
| 09/30/86 | 343,600 | 441,400 | 785,000 | 105,100 | 104,100 | 209,200 |
| 09/30/85 | 337,600 | 420,500 | 758,100 | 101,700 | 97,200 | 198,900 |
| 09/30/84 | 327,900 | 393,400 | 721,300 | 91,500 | 86,900 | 178,400 |
| 09/30/83 | 318,905 | 377,999 | 696,904 | 86,292 | 81,126 | 167,418 |
| 09/30/82 | 310,125 | 351,295 | 661,420 | 82,040 | 74,531 | 156,571 |
| 09/30/81 | 298,381 | 316,830 | 615,211 | 74,677 | 65,842 | 140,519 |
| 09/30/80 | 285,104 | 278,711 | 563,815 | 71,396 | 58,173 | 129,569 |
| 09/30/79 | 268,321 | 245,893 | 514,214 | 65,068 | 50,975 | 116,043 |
| 09/30/78 | 251,029 | 220,802 | 471,831 | 61,362 | 47,282 | 108,644 |
| 09/30/77 | 231,562 | 192,105 | 423,667 | 57,436 | 42,758 | 100,194 |
| 09/30/76 c/ | 53,342 | 41,777 | 95,119 | 12,977 | 10,017 | 22,994 |
| 06/30/76 | 211,270 | 163,109 | 374,379 | 52,748 | 37,417 | 90,165 |
| 06/30/75 | 198,808 | 139,708 | 338,516 | 50,249 | 34,585 | 84,834 |
| 06/30/74 | 181,881 | 113,084 | 294,965 | 45,986 | 31,159 | 77,145 |
| 06/30/73 | 179,472 | 103,803 | 283,275 | 41,705 | 29,625 | 71,330 |
| 06/30/72 | 170,124 | 97,725 | 267,849 | 39,872 | 28,012 | 67,884 |
| 06/30/71 | 162,777 | 91,402 | 254,179 | 34,709 | 25,923 | 60,632 |
| 06/30/70 | 148,366 | 85,863 | 234,229 | 31,620 | 23,870 | 55,490 |
| 06/30/69 | 138,901 | 81,795 | 220,696 | 28,398 | 22,173 | 50,571 |

a/ Amounts due from 1969-1984 are based on debt service reports including amounts declared due and paid in full by borrowers ahead of schedule. Estimates for 1985-1990 are estimated on the basis of all funds under loan contract or pending.

b/ Reflects interest credit for payments in advance of due date.

c/ Includes transition quarter.

Table 16. Annual REA Administrative Obligations, 1936 to 1985

| Fiscal Year | Number of Borrowers: Electric Program | Number of Borrowers: Telephone Program | Cumulative Loan Funds Advanced ($ in 000's): Electric Program | Cumulative Loan Funds Advanced ($ in 000's): Telephone Program | Administrative Funds Obligated ($ in 000's): Electric Program | Administrative Funds Obligated ($ in 000's): Telephone Program | Person-years Employed a/: Electric Program | Person-years Employed a/: Telephone Program |
|---|---|---|---|---|---|---|---|---|
| 1985 | 1,106 | 1,034 | 16,960,121 | 4,099,288 | 15,307 | 13,109 | 321 | 282 |
| 1984 | 1,105 | 1,036 | 16,298,908 | 3,963,361 | 4,917 | 13,231 | 333 | 298 |
| 1983 | 1,106 | 1,034 | 15,706,706 | 3,775,527 | 14,557 | 13,422 | 343 | 319 |
| 1982 | 1,105 | 1,021 | 15,033,054 | 3,593,616 | 14,529 | 13,398 | 357 | 331 |
| 1981 | 1,102 | 1,004 | 14,223,625 | 3,355,041 | 14,499 | 13,338 | 372 | 346 |
| 1980 | 1,097 | 985 | 13,300,561 | 3,074,346 | 14,094 | 12,624 | 385 | 351 |
| 1979 | 1,093 | 951 | 12,332,895 | 2,835,241 | 12,993 | 11,713 | 377 | 347 |
| 1978 | 1,101 | 936 | 11,425,762 | 2,637,142 | 12,452 | 11,134 | 392 | 349 |
| 1976 | 1,093 | 918 | 9,813,780 | 2,284,760 | 10,851 | 9,702 | 413 | 363 |
| 1974 | 1,094 | 894 | 8,428,891 | 1,998,530 | 8,801 | 8,031 | 398 | 362 |
| 1972 | 1,094 | 867 | 7,293,975 | 1,754,097 | 8,706 | 7,683 | 433 | 388 |
| 1970 | 1,097 | 878 | 6,463,530 | 1,484,279 | 7,887 | 6,944 | 461 | 411 |
| 1968 | 1,100 | 874 | 5,734,078 | 1,242,999 | 7,026 | 5,621 | 497 | 401 |
| 1966 | 1,103 | 855 | 5,030,390 | 1,039,691 | 6,412 | 5,496 | 505 | 438 |
| 1964 | 1,102 | 838 | 4,451,823 | 876,695 | 5,920 | 5,109 | 505 | 445 |
| 1962 | 1,094 | 790 | 3,960,104 | 706,564 | 5,317 | 4,669 | 498 | 450 |
| 1960 | 1,087 | 705 | 3,580,884 | 501,262 | 4,717 | 4,789 | 487 | 502 |
| 1958 | 1,080 | 611 | 3,146,546 | 309,609 | 4,541 | 4,498 | 499 | 503 |
| 1956 | 1,078 | 466 | 2,755,236 | 153,808 | 4,346 | 3,727 | 546 | 468 |
| 1954 | 1,079 | 279 | 2,443,754 | 60,102 | 4,505 | 2,798 | 628 | 392 |
| 1952 | 1,080 | 190 | 2,054,592 | 7,797 | 6,631 | 1,584 | 696 | 214 |
| 1950 | 1,070 | 17 | 1,558,887 | -0- | 6,687 | 353 | 1,152 | 49 |
| 1948 | 1,039 | -0- | 950,942 | -0- | 4,818 | -0- | 929 | -0- |
| 1946 | 996 | -0- | 514,620 | -0- | 4,470 | -0- | 987 | -0- |
| 1944 | 887 | -0- | 387,631 | -0- | 2,549 | -0- | 646 | -0- |
| 1942 | 874 | -0- | 354,616 | -0- | 3,851 | -0- | 1,094 | -0- |
| 1940 | 692 | -0- | 221,287 | -0- | 2,710 | -0- | 785 | -0- |
| 1938 | 367 | -0- | 60,041 | -0- | 1,472 | -0- | 460 | -0- |
| 1936 | 66 | -0- | 823 | -0- | 670 | -0- | 206 | -0- |

a/ Includes legal staff employed by REA prior to 1942.

REA's funding history is summarized in Table 17.

Table 17. Rural Electric and Telephone Programs: Funding History

| Fiscal Year | Average REA Interest Rate a/ | Average Cost of Money to Government | Average Cost to REA | Amount Rural Systems Borrowed from REA | Amount Systems Owe REA | Amount REA Borrowed from Treasury | Amount REA owes Treasury | When Due |
|---|---|---|---|---|---|---|---|---|
| 1936 | 3% | 2.53% | - | $14.21 million | 0 | - | - | paid in full |
| 1937-52 | 2.33% | 2.10% | - | $2.660 billion | (not computed) | - | - | mostly paid |
| 1953-72 | 2% b/ | 3.61% c/ | (not computed) | $8.220 billion | $4.106 billion | $10.069 billion | $7.206 billion | partly paid; final payment due in 2011 |
| 1973-85 | 4.45% d/ | 8.72% | 11.38% e/ | $13.141 billion | $9.851 billion | $4.383 f/ billion | $4.383 f/ billion | 1993-2016 |

Notes

a/ The first loans were made with an interest rate higher than the cost of money to the Government. At the time, the availability of the money was more important than a discount rate.

b/ In 1945, the REA interest rate was set at 2% by law. In 1952, the cost of money to Government began to exceed the REA interest rate.

c/ In 1966, the cost of money to the Government doubled the REA interest rate.

d/ When the Rural Electrification and Telephone Revolving Fund was created in 1973, it was made liable for the outstanding debt by REA of $7.409 billion to the U.S. Treasury. All interest on that debt was forgiven. That same year the interest rate on loans from REA was set at 5% although 2% loans could be made under certain conditions.

e/ Average CBO rate.

f/ Includes CBOs of $3.724 billion.

Table 18. Notes Payable

Long-Term Notes

| Note No. | Date of Note | Maturity Date | Face Amount of Note | Advances | Unadvanced Balance | Principal Repayments | Unpaid Principal Balance |
|---|---|---|---|---|---|---|---|
| 1-30 | Paid in full | | $2,741,236,718.00 | $2,741,236,718.00 | -0- | $2,741,236,718.00 | $ -0- |
| 31 | 08-14-53 | 06-30-93 | 202,500,000.00 | 202,500,000.00 | -0- | 121,087,701.32 | 81,412,298.68 |
| 32 | 05-21-54 | 12-31-93 | 38,000,000.00 | 38,000,000.00 | -0- | -0- | 38,000,000.00 |
| 33 | 07-12-54 | 06-30-94 | 210,000,000.00 | 210,000,000.00 | -0- | -0- | 210,000,000.00 |
| 34 | 05-19-55 | 12-31-94 | 35,000,000.00 | 35,000,000.00 | -0- | -0- | 35,000,000.00 |
| 35 | 07-06-55 | 06-30-95 | 235,000,000.00 | 235,000,000.00 | -0- | -0- | 235,000,000.00 |
| 36 | 07-17-56 | 06-30-96 | 269,000,000.00 | 269,000,000.00 | -0- | -0- | 269,000,000.00 |
| 37 | 04-04-57 | 12-31-96 | 25,000,000.00 | 25,000,000.00 | -0- | -0- | 25,000,000.00 |
| 38 | 04-23-57 | 12-31-96 | 200,000,000.00 | 200,000,000.00 | -0- | -0- | 200,000,000.00 |
| 39 | 08-21-57 | 06-30-97 | 209,000,000.00 | 209,000,000.00 | -0- | -0- | 209,000,000.00 |
| 40 | 03-06-58 | 12-31-97 | 10,000,000.00 | 10,000,000.00 | -0- | -0- | 10,000,000.00 |
| 41 | 07-08-58 | 06-30-98 | 384,500,000.00 | 384,500,000.00 | -0- | -0- | 384,500,000.00 |
| 42 | 01-27-59 | 12-31-98 | 25,000,000.00 | 25,000,000.00 | -0- | -0- | 25,000,000.00 |
| 43 | 07-16-59 | 06-30-99 | 215,000,000.00 | 215,000,000.00 | -0- | -0- | 215,000,000.00 |
| 44 | 01-15-60 | 12-31-99 | 25,000,000.00 | 25,000,000.00 | -0- | -0- | 25,000,000.00 |
| 45 | 07-05-60 | 06-30-00 | 190,000,000.00 | 190,000,000.00 | -0- | -0- | 190,000,000.00 |
| 46 | 01-11-61 | 12-31-00 | 30,000,000.00 | 30,000,000.00 | -0- | -0- | 30,000,000.00 |
| 47 | 03-14-61 | 12-31-00 | 30,000,000.00 | 30,000,000.00 | -0- | -0- | 30,000,000.00 |
| 48 | 05-10-61 | 12-31-00 | 60,000,000.00 | 60,000,000.00 | -0- | -0- | 60,000,000.00 |
| 49 | 09-07-61 | 06-30-01 | 307,500,000.00 | 307,500,000.00 | -0- | -0- | 307,500,000.00 |
| 50 | 05-01-62 | 12-31-01 | 70,000,000.00 | 70,000,000.00 | -0- | -0- | 70,000,000.00 |
| 51 | 02-07-63 | 12-31-02 | 380,000,000.00 | 380,000,000.00 | -0- | -0- | 380,000,000.00 |
| 52 | 06-10-63 | 12-31-02 | 25,000,000.00 | 25,000,000.00 | -0- | -0- | 25,000,000.00 |
| 53 | 03-03-64 | 12-31-03 | 345,000,000.00 | 345,000,000.00 | -0- | -0- | 345,000,000.00 |
| 54 | 09-18-64 | 06-30-04 | 338,000,000.00 | 338,000,000.00 | -0- | -0- | 338,000,000.00 |
| 55 | 05-18-65 | 12-31-04 | 97,000,000.00 | 97,000,000.00 | -0- | -0- | 97,000,000.00 |
| 56 | 11-23-65 | 06-30-05 | 387,000,000.00 | 387,000,000.00 | -0- | -0- | 387,000,000.00 |
| 57 | 05-25-66 | 12-31-05 | 15,000,000.00 | 15,000,000.00 | -0- | -0- | 15,000,000.00 |
| 58 | 06-29-66 | 12-31-05 | 51,529,769.00 | 51,529,769.00 | -0- | -0- | 51,529,769.00 |
| 59 | 01-16-67 | 12-31-06 | 447,000,000.00 | 447,000,000.00 | -0- | -0- | 447,000,000.00 |
| 60 | 06-28-67 | 12-31-06 | 15,000,000.00 | 15,000,000.00 | -0- | -0- | 15,000,000.00 |
| 61 | 02-15-68 | 12-31-07 | 434,600,000.00 | 434,600,000.00 | -0- | -0- | 434,600,000.00 |
| 62 | 10-09-68 | 06-30-08 | 449,000,000.00 | 449,000,000.00 | -0- | -0- | 449,000,000.00 |
| 63 | 12-17-69 | 06-30-09 | 463,300,000.00 | 463,300,000.00 | -0- | -0- | 463,300,000.00 |
| 64 | 02-03-71 | 12-31-10 | 465,800,000.00 | 465,800,000.00 | -0- | -0- | 465,800,000.00 |
| 65 | 09-21-71 | 06-30-11 | 644,100,000.00 | 644,100,000.00 | -0- | -0- | 644,100,000.00 |
| 66 | 03-19-73 | 12-31-12 | 201,896,605.00 | 201,896,605.00 | -0- | -0- | 201,896,605.00 |
| 67 | 05-03-74 | 12-31-13 | 594,000.00 | 594,000.00 | -0- | -0- | 594,000.00 |
| **68 | - | - | - | - | - | - | - |
| 69 | 11-18-76 | 12-31-16 | 455,509,395.00 | 455,509,395.00 | -0- | -0 | 455,509,395.00 |
| | | Total | $10,727,066,487.00 | $10,727,066,487.00 | -0- | $2,862,324,419.32 | $7,864,742,067.68 |

** A short-term note dated 3/31/76 already repaid is not included in this table.

Table 19. Schedule of Noninterest-Bearing Notes Payable to Treasury and Imputed Interest

| Date of Note | Date Note Adv. in Full | Maturity Date | Outstanding Balance of Note | Interest Rate * | Annual Imputed Interest |
|---|---|---|---|---|---|
| 08-14-53 | 01-17-57 | 06-30-93 | $ 81,412,298.68 | 2 1/8 | $ 1,730,011.35 |
| 05-21-54 | 03-07-57 | 12-31-93 | 38,000,000.00 | 2 1/8 | 807,500.00 |
| 07-12-54 | 01-07-58 | 06-30-94 | 210,000,000.00 | 2 | 4,200,000.00 |
| 05-19-55 | 01-07-58 | 12-31-94 | 35,000,000.00 | 2 | 700,000.00 |
| 07-06-55 | 10-09-58 | 06-30-95 | 235,000,000.00 | 2 | 4,700,000.00 |
| 07-17-56 | 09-28-59 | 06-30-96 | 269,000,000.00 | 2 3/8 | 6,388,750.00 |
| 04-04-57 | 09-28-59 | 12-31-96 | 25,000,000.00 | 2 3/8 | 593,750.00 |
| 04-23-57 | 04-04-60 | 12-31-96 | 200,000,000.00 | 2 3/8 | 4,750,000.00 |
| 08-21-57 | 01-05-61 | 06-30-97 | 209,000,000.00 | 2 5/8 | 5,486,250.00 |
| 03-06-58 | 01-05-61 | 12-31-97 | 10,000,000.00 | 2 5/8 | 262,500.00 |
| 07-08-58 | 07-06-62 | 06-30-98 | 384,500,000.00 | 2 1/2 | 9,612,500.00 |
| 01-27-59 | 07-06-62 | 12-31-98 | 25,000,000.00 | 2 1/2 | 625,000.00 |
| 07-16-59 | 03-15-63 | 06-30-99 | 215,000,000.00 | 2 7/8 | 6,181,250.00 |
| 01-15-60 | 03-15-63 | 12-31-99 | 25,000,000.00 | 2 7/8 | 718,750.00 |
| 07-05-60 | 10-01-63 | 06-30-00 | 190,000,000.00 | 3 3/8 | 6,412,500.00 |
| 01-11-61 | 10-01-63 | 12-31-00 | 30,000,000.00 | 3 3/8 | 1,012,500.00 |
| 03-14-61 | 01-15-64 | 12-31-00 | 30,000,000.00 | 3 3/8 | 1,012,500.00 |
| 05-10-61 | 01-15-64 | 12-31-00 | 60,000,000.00 | 3 3/8 | 2,025,000.00 |
| 09-07-61 | 12-22-64 | 06-30-01 | 307,500,000.00 | 3 | 9,225,000.00 |
| 05-01-62 | 04-02-65 | 12-31-01 | 70,000,000.00 | 3 | 2,100,000.00 |
| 02-07-63 | 03-11-66 | 12-31-02 | 380,000,000.00 | 3 1/4 | 12,350,000.00 |
| 06-10-63 | 03-11-66 | 12-31-02 | 25,000,000.00 | 3 1/4 | 812,500.00 |
| 03-03-64 | 01-23-67 | 12-31-03 | 345,000,000.00 | 3 3/8 | 11,643,750.00 |
| 09-18-64 | 11-22-67 | 06-30-04 | 338,000,000.00 | 3 5/8 | 12,252,500.00 |
| 05-18-65 | 01-16-68 | 12-31-04 | 97,000,000.00 | 3 5/8 | 3,516,250.00 |
| 11-23-65 | 08-12-68 | 06-30-05 | 387,000,000.00 | 3 3/4 | 14,512,500.00 |
| 05-25-66 | 12-18-68 | 12-31-05 | 15,000,000.00 | 3 3/4 | 562,000.00 |
| 06-29-66 | 12-18-68 | 12-31-05 | 51,529,769.00 | 3 3/4 | 1,932,366.34 |
| 01-16-67 | 01-08-70 | 12-31-06 | 447,000,000.00 | 4 1/8 | 18,438,750.00 |
| 06-28-67 | 01-08-70 | 12-31-06 | 15,000,000.00 | 4 1/8 | 618,750.00 |
| 02-15-68 | 11-12-70 | 12-31-07 | 434,600,000.00 | 4 1/8 | 17,927,250.00 |
| 10-09-68 | 08-12-71 | 06-30-08 | 449,000,000.00 | 4 3/4 | 21,327,500.00 |
| 12-17-69 | 07-13-72 | 06-30-09 | 463,300,000.00 | 5 1/8 | 23,744,125.00 |
| 02-03-71 | 03-15-73 | 12-31-10 | 465,800,000.00 | 5 7/8 | 27,365,750.00 |
| 09-21-71 | 09-24-74 | 06-30-11 | 644,100,000.00 | 5 1/8 | 33,010,125.00 |
| 03-19-73 | 01-17-77 | 12-31-12 | 201,896,605.00 | 5 | 10,094,830.25 |
| 05-03-74 | 06-06-74 | 12-31-13 | 594,000.00 | 7 | 41,580.00 |
| 11-18-76 | 08-15-77 | 12-31-16 | 455,509,395.00 | 6 1/4 | 28,469,337.19 |
| | | TOTAL | $7,864,742,067.68 | | $307,163,595.13 |
| | | Imputed interest per month | | | $ 25,596,968.76 |

* The computed average annual interest rate on the outstanding interest-bearing marketable public debt obligations of the United States, adjusted to the next lower one-eight of one percent, as determined by Treasury at the end of each fiscal year and applicable to the succeeding year.

Audits. The U.S. Department of Agriculture's Office of the Inspector General (OIG) undertook a nationwide audit of the REA telephone loan program during FY 84 and 85. The audit had five objectives:

- Ensure that internal controls over loan payments comply with the Federal Managers Financial Integrity Act of 1982;
- Determine whether Rural Telephone Bank (RTB) interest rates are consistent with the RTB's cost of money;
- Determine if loan advances to borrowers were justified;
- Determine whether loan funds were obtained and used in accord with REA policies and procedures; and
- Determine whether borrower financial strength and rural service area characteristics justified REA financing.

Recommendations for improvement were made by OIG. The actions REA is taking to improve implementation of the program will be completed during FY 86.

The General Accounting Office (GAO) completed an audit of the RTB system of internal accounting controls during FY 84. In a report issued September 28, 1984, GAO wrote, "In our opinion, the Rural Telephone Bank complied with the terms and provisions of laws and regulations for the transactions tested that could have materially affected the Bank's financial statements."

In FY 84, OIG began an audit of REA loan-making policies for generation and transmission cooperatives. Although the audit remained unfinished at the end of FY 85, REA has taken steps to examine its policies thoroughly in light of preliminary recommendations.

Regulations. Final and proposed regulations issued by REA during FY 84-85 are:

Final Regulations:

- Specification for Telephone Station Protectors (9/16/85)
  This rule amends REA Bulletin 345-39 by adopting an industrywide standard for protective devices used in telecommunications systems.
- Performance Specification for Line Concentrators (8/19/85)
  This rule reflects technological developments in equipment advantageous to borrowers and subscribers.
- Electric Loans - Advance of Funds (2/8/85)
  This rule restricts the advance of funds for electric loans. Advances may be made only to projects included in an REA-approved construction workplan or amendment to such plan, and for which insured loan funds have been approved. Advances can be used only for purposes authorized under terms of the contract between the borrower and the Federal Government and where such use is not in conflict with REA policies then in effect.

- Field Trials (8/12/84)
This rule covers information set forth in REA Bulletin 345-45, Field Trial of Telephone Construction Materials and Equipment. It clarifies the responsibilities of borrowers and manufacturers in the conduct of a field trial and increases the effectiveness of trials while reducing the effort needed to collect performance data.

- General Specification for Digital, Stored Program-Controlled Central Office Equipment (7/11/84)
This rule covers information in Bulletin 345-155, including REA Form 522. It is intended to keep borrower equipment current with fast-changing technology and developments advantageous to borrowers and subscribers.

- Electric Standards and Specifications (6/14/84)
This rule revises REA Bulletin 50-70, REA Specification for 15 kV and 25 kV Primary Underground Power Cable, to change requirements for concentric neutral coating and insulation shielding and to include ethylene propylene rubber as acceptable insulation in power cable.

- Loan Account Computations, Procedures and Policies (5/29/84)
This rule covers loan account payments, procedures and policies for electric borrowers. It provides for automatic termination of unadvanced loan fund commitments 4 years from the date of the loan contract or any amendment, with certain exemptions.

- Electric System Planning and Design (3/27/84)
This rule eliminates the requirement that REA grant specific approval for deviations from REA construction standards in two areas: 1) the national electrical safety code and 2) powerline contacts by large birds. The major part of the codification of electric system planning and design remains unfinished.

- Environmental Policies and Procedures (3/13/84)
This rule governs all REA environmental policies and procedures. Its purpose is to reduce unnecessary requirements on recipients of financial assistance while maintaining all environmental protection responsibilities.

Proposed Regulations:

- Unapplied Advance Payments (2/8/85)
This proposed rule would add to REA Bulletins 1-7, General Funds, and 20-9, Loan Payments and Statements, to eliminate future cushion-of-credit payments by electric systems borrowing insured funds after February 1, 1985.

- Revision and Codification of REA Policies Concerning Audits of REA Borrowers (1/23/85)
This proposed rule would revise REA Bulletins 185-1 and 465-1, Audit of REA Borrowers' Accounting Records, and 185-2 and 465-2, Audit Working Papers. REA's audit policy is to reflect requirements contained in Statements on Audit Standards published by the American Institute of

Certified Public Accountants and in Statements of the Financial Accounting Standards Board since 1972. The proposal would require borrowers after December 31, 1985, to select a certified public accountant who agrees to belong to an REA-approved peer review program.

Electric Standards and Specifications, Deletion of Distribution Construction Drawings (9/12/84)
REA proposed to delete from REA Bulletin 50-5 the requirement for two drawings on transformer clusters.

- Electric Standards and Specifications (7/23/84)
REA proposed to revise REA Bulletin 50-1, Electric Transmission Specifications and Drawings, to reflect current national standards and construction practices.

- Specification for Filled Telephone Cables with Expanded Insulation (7/9/84)
REA proposed to revise REA Bulletin 345-89 to allow the use of 19 AWG conductor-size pairs and pair sizes below 200 and associated end products. The aim of the regulation is to permit borrowers to install a full range of filled telephone cable with expanded insulation at reduced cost while decreasing the consumption of petroleum.

- Construction Certification Program (7/8/84)
This proposed rule revises REA Bulletin 320-23, Construction Certification Procedures for Desginated Telephone Borrowers, to allow qualified borrowers to participate in a construction self-certification program and to require that final inspection of construction be performed by an engineer experienced in telephony and licensed in the state in which the inspection is performed. Other clarifications are included in the proposal.

- Lien Accommodations (Telephone Program) (4/18/84)
This proposed rule would permit borrowers to attract outside capital to finance projects designed to aid in the development of rural areas, as determined by the administrator.

- Criteria for Rate and Margin Stabilization Plans; Electric Wholesale Rates (3/9/84)
This proposal is designed to reduce fluctuations in borrower accounting for revenue margins, times interest earned ratio, wholesale rates and related information.

- Electric Standards and Specifications (1/18/84)
This proposed rule revises REA Bulletins 50-17, Specification for Wood Crossarms (Solid and Laminated), Transmission Timbers and Pole Keys, and 50-18, Specification for Wood Poles, Stubs and Anchor Logs, to place more responsibility on borrowers for assuring the quality of timber products.

- Electric Standards and Specifications (1/16/84)
This proposal revises REA Bulletin 50-4 to allow borrowers an additional choice of distribution voltage for particular distribution lines.

- General Fund Criteria for New Loans and Advances (10/21/83)
  This proposal requested comments that would contribute to the adequacy of REA's policies, procedures and controls on borrower general funds.

Civil Rights Activities. In FY 84 REA continued to promote borrower patronage of minority business enterprises and helped borrowers develop training and employment opportunities for minorities and women.

In FY 84 REA processed compliance and participation reports submitted by 931 electric borrowers and 945 telephone borrowers. REA also completed compliance reviews in the field of 120 electric and telephone borrowers. At year end, 145 electric borrowers and 33 telephone borrowers had adopted the REA civil rights development program. This brought the participation of electric borrowers to nearly 16 percent and the participation of telephone borrowers to nearly 4 percent.

In FY 85 REA analyzed reports submitted by 914 electric borrowers and 922 telephone borrowers and completed compliance reviews for 105 electric and telephone borrowers in the field. Additionally, REA field staff conducted 628 on-site reviews. REA promoted a civil rights development program to stimulate borrowers to greater achievements in civil rights and equal opportunity. At the close of FY 85, 236 electric borrowers and 74 telephone borrowers had adopted the program.

Automated Data Processing (ADP). In the past few years, REA has made significant strides in the advancement of information technology. REA's ADP system has advanced from a fragmented, antiquated system to an integrated set of systems that provide information on an agencywide basis.

During FY 84-85, REA automated requisitions by borrowers for release of funds. This has shortened processing time, standardized procedures, provided management immediate access to the status of requisitions, permitted more efficient utilization of staff resources, and eliminated the need to check arithmetic calculations.

Borrower Information System. During FY 84-85 REA enhanced its borrower information system to expedite the processing of loans and advances. The system currently provides the complete status of loan applications, approved loans, borrowers' last three annual operating reports, borrower statistical profiles, and other annual statistical data. Enhancements being developed included borrower directory information, more detailed loan statistics, report of unadvanced funds, task tracking, and a computer-aided feasibility study.

Training. REA has developed two employee training programs from which to fill managerial positions as senior employees retire.

The Management Development Program identifies employees who occupy managerial positions and have the potential for future successful performance in these positions. Six employees completed the management development program in FY 85.

The Middle Management Development Program identifies high-potential employees at the GS-9 through GS-12 levels and provides them training and developmental experiences to prepare them for positions of increased responsibility.

The Rural Electrification and Telephone Revolving Fund. In 1973 the Rural Electrification Act was amended to create the Rural Electrification and Telephone Revolving Fund in the U.S. Department of the Treasury. As established, the Fund had assets of $7.7 billion which included outstanding notes from rural utility systems payable to REA, funds REA had borrowed and approved for loans but not yet advanced, funds REA had collected since July 1, 1972, and $60 million in Class A stock certificates of the Rural Telephone Bank. All future collections of principal and interest on REA loans were to be placed in the Fund.

At its creation, the Fund also had a debt of $7.4 billion which resulted from funds REA had borrowed from the United States Treasury since 1953 to advance loans to rural borrowers. All future interest on this debt was forgiven.

From 1973 through 1975 REA advanced loans from the cash of the Fund. Beginning in 1976, the Fund lacked sufficient capital to cover REA loan amounts, so REA acquired funds by selling Certificates of Beneficial Ownership (CBOs) in the assets of the Fund. Since then, REA has sold $3.7 billion in CBOs on which the Fund pays an average of more than 11 percent in interest.

Some time during the 1990s the annual interest expense of the Fund is expected to exceed its annual interest income. Moreover, the Fund's debt, which now amounts to $7.9 billion, begins to come due in 1993.

Table 20. Rural Electrification and Telephone Revolving Fund: History
($ rounded to millions)

| | Receipts | | | Funds Spent | | Percent of Interest Collections that Service REA Debt |
|---|---|---|---|---|---|---|
| | Principal | Interest | REA Sale of CBOs to Treasury | Borrowers | Treasury | |
| 1973 | $191 | $133 | $ - | $ 577 | $ - | - % |
| 1974 | 228 | 144 | - | 802 | - | - |
| 1975 | 249 | 174 | - | 855 | - | - |
| 1976 | 330 | 252 | 354 | 1,024 | 11 | 4.4 |
| 1977 | 289 | 235 | - | 875 | 30 | 12.8 |
| 1978 | 312 | 268 | 284 | 881 | 37 | 13.8 |
| 1979 | 333 | 297 | 586 | 1,105 | 79 | 26.6 |
| 1980 | 357 | 337 | 689 | 1,207 | 144 | 42.7 |
| 1981 | 373 | 383 | 683 | 1,204 | 228 | 59.5 |
| 1982 | 392 | 426 | 528 | 1,048 | 317 | 74.4 |
| 1983 | 405 | 459 | 344 | 856 | 368 | 80.2 |
| 1984 | 426 | 479 | 69 | 780 | 396 | 82.7 |
| 1985 | 440 | 510 | 188 | 797 | 409 | 80.2 |

Each year since the Revolving Fund was established, REA has paid out more in advances and interest than it has received in payments on loans. The rate of interest REA pays to use the money of the Fund is greatly in excess of the interest rates REA charges borrowers. The history of REA's borrowing as reflected in sales of CBOs is shown in Table 21.

Table 21. Sales of Certificates of Beneficial Ownership

| Sale Number | Sale Date | Amount (In thousands) | Interest Rate | Year of Maturity |
|---|---|---|---|---|
| 1 | 3-31-76 | $ 166,374 | 8.205% | 2006 |
| 2 | 9-30-76 | 187,260 | 8.100% | 2006 |
| 3 | 3-31-78 | 97,023 | 8.465% | 2008 |
| 4 | 9-30-78 | 187,000 | 8.785% | 2008 |
| 5 | 3-31-79 | 283,300 | 9.125% | 2009 |
| 6 | 9-30-79 | 302,225 | 9.425% | 2009 |
| 7 | 3-31-80 | 329,125 | 12.525% | 2010 |
| 8 | 9-30-80 | 360,000 | 12.055% | 2010 |
| 9 | 3-31-81 | 380,000 | 12.925% | 2011 |
| 10 | 9-30-81 | 303,000 | 15.325% | 2011 |
| 11 | 3-31-82 | 288,400 | 13.935% | 2012 |
| 12 | 9-30-82 | 240,000 | 11.915% | 2012 |
| 13 | 3-31-83 | 187,000 | 10.775% | 2013 |
| 14 | 9-30-83 | 156,800 | 11.605% | 2013 |
| 15 | 9-30-84 | 69,200 | 12.405% | 2014 |
| 16* | - | - | - | - |
| 17 | 9-30-85 | 187,600 | 10.625% | 2015 |
| | | $3,724,307 | 11.374%** | |

* A short-term sale dated 3/31/85 repaid in full is not included in this table.

** Composite rate on cumulative amount.

When Congress created the REA loan program it did not provide an interest rate subsidy. Interest rates charged to borrowers fluctuated with the cost of money to the Government. In 1944, Congress established a fixed interest rate of 2 percent, which at that time was the approximate cost of money to the Government. In 1973, Congress established the Revolving Fund, setting the interest rate on insured loans at 5 percent and authorizing rates as low as 2 percent at the discretion of the Administration. During the late 1970s and early 1980s there was a widening of the gap between the cost of money to the Government and the interest rate charged borrowers on REA loans, as shown in Figures 4 and 5.

Figure 4. Rural Electrification and Telephone Revolving Fund: Advances to Borrowers and Interest Paid Compared with Principal and Interest Paid by Borrowers

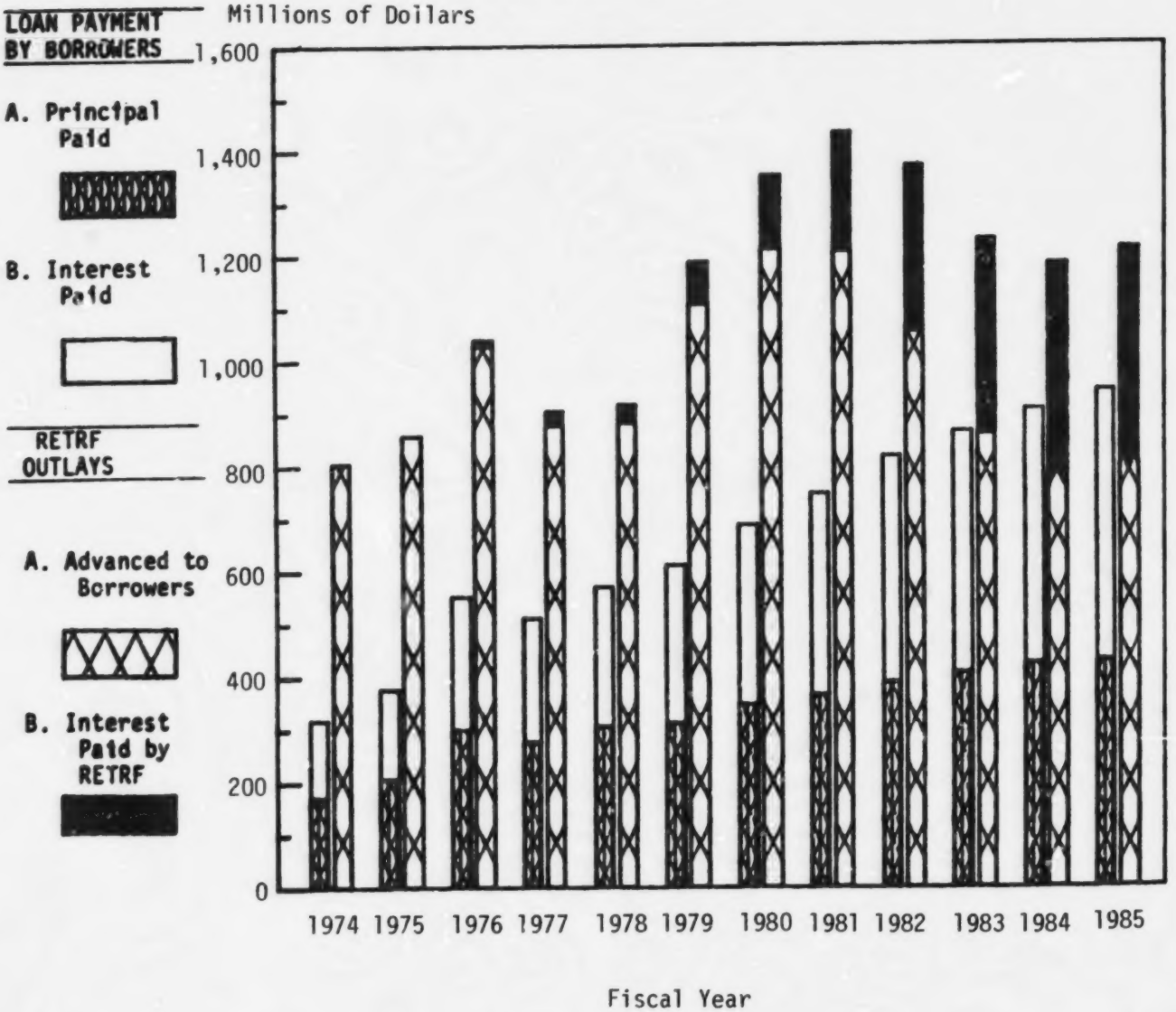


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Figure 5. Interest Rate on REA Loans Compared with Cost of Money to the Government

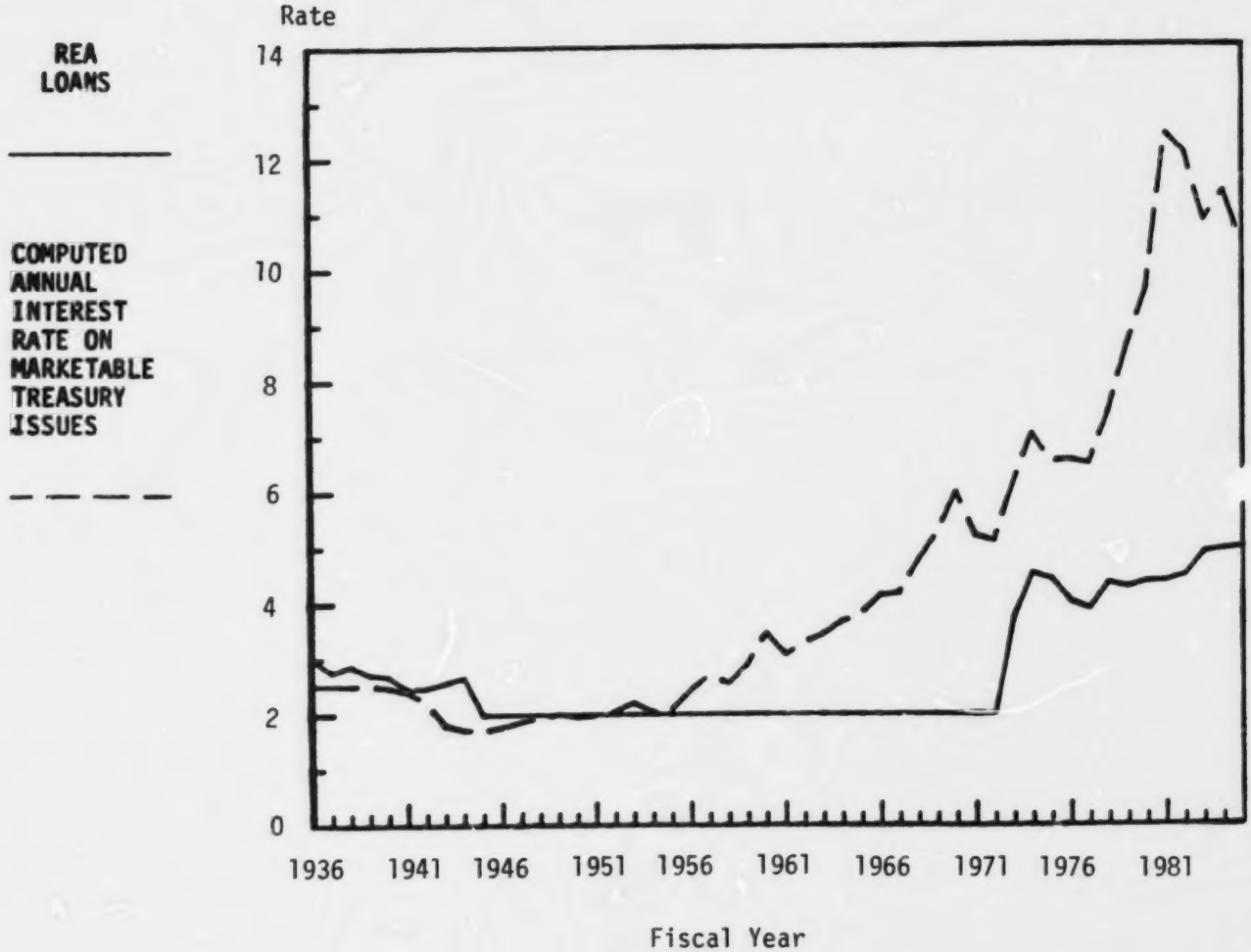


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Table 22. Rural Electrification and Telephone Revolving Fund: Ledger
Fiscal Years 1973 - 1985

| Fiscal Year | Interest Receipts a/ | Interest Expenses Paid to Treasury: Interim Borrowings | Interest Expenses Paid to Treasury: CBOs a/ | Interest Expenses Paid to Treasury: Total | Net Revenue | Imputed Interest Costs b/ | Net Revenue Less Imputed Interest |
|---|---|---|---|---|---|---|---|
| 1973 | $133,428,697 | -- | -- | -- | $133,428,697 | $235,548,253 c/ | $-102,119,556 |
| 1974 | 144,243,751 | -- | -- | -- | 144,243,751 | 241,241,786 c/ | -96,998,035 |
| 1975 | 174,293,050 | -- | -- | -- | 174,293,050 | 268,091,114 c/ | -93,798,064 |
| 1976 d/ | 252,321,548 | $ 4,569,307 | $ 6,844,193 | $ 11,413,501 | 240,908,047 | 348,360,664 c/ | -107,452,617 |
| 1977 | 234,429,665 | 807,912 | 28,819,047 | 29,626,959 | 204,802,706 | 278,688,531 c/ | -73,885,825 |
| 1978 | 268,089,987 | 3,955,240 | 32,936,796 | 36,892,036 | 231,197,951 | 307,163,625 c/ | -75,965,674 |
| 1979 | 296,873,720 | 12,590,122 | 66,520,395 | 79,110,517 | 217,763,203 | 307,163,625 | -89,400,422 |
| 1980 | 336,900,666 | 15,545,671 | 128,605,588 | 144,151,259 | 192,749,407 | 307,163,625 | -114,414,218 |
| 1981 | 382,697,295 | 11,169,190 | 217,239,822 | 228,409,012 | 154,288,283 | 307,163,625 | -152,875,342 |
| 1982 | 425,826,718 | 8,210,459 | 308,314,114 | 316,524,573 | 109,302,145 | 307,163,625 | -197,861,480 |
| 1983 | 459,125,105 | 855,027 | 367,051,558 | 367,906,585 | 91,218,520 | 307,163,625 | -215,945,105 |
| 1984 | 479,165,007 | 268,534 | 395,295,221 | 395,563,755 | 83,601,252 | 307,163,625 | -223,562,373 |
| 1985 | $510,777,895 | $ 3,458,783 | $405,418,207 | $408,876,990 | $101,900,905 | $307,163,625 | $-205,262,720 |

a/ Includes interest received by REA as trustee for holders of CBOs and paid to Treasury.

b/ In 1978 GAO instructed REA to begin reflecting as interest expense the imputed interest costs attributable to outstanding REA notes payable to Treasury which were made liabilities of the revolving fund and noninterest bearing notes by the 1973 amendment to the Rural Electrification Act. This interest is called imputed since REA makes no payment of interest.

c/ These imputed interest costs were not reflected in the Budget Appendix for those years.

d/ Includes transition quarter.

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Table 23. Interest Rate on REA Loans vs. Cost of Money to the Government

| Fiscal Year | Interest Rate Paid by Borrowers on REA Loans (Weighted Average) | Annual Interest Rate on Marketable Treasury Issues* |
|---|---|---|
| 1936 | 3.00 | 2.530 |
| 1937 | 2.77 | 2.525 |
| 1938 | 2.88 | 2.521 |
| 1939 | 2.73 | 2.525 |
| 1940 | 2.69 | 2.492 |
| 1941 | 2.46 | 2.413 |
| 1942 | 2.48 | 2.225 |
| 1943 | 2.57 | 1.822 |
| 1944 | 2.67 | 1.725 |
| 1945 | 2.00 | 1.718 |
| 1946 | 2.00 | 1.773 |
| 1947 | 2.00 | 1.871 |
| 1948 | 2.00 | 1.942 |
| 1949 | 2.00 | 2.001 |
| 1950 | 2.00 | 1.958 |
| 1951 | 2.00 | 1.981 |
| 1952 | 2.00 | 2.051 |
| 1953 | 2.00 | 2.207 |
| 1954 | 2.00 | 2.043 |
| 1955 | 2.00 | 2.079 |
| 1956 | 2.00 | 2.427 |
| 1957 | 2.00 | 2.707 |
| 1958 | 2.00 | 2.546 |
| 1959 | 2.00 | 2.891 |
| 1960 | 2.00 | 3.449 |
| 1961 | 2.00 | 3.063 |
| 1962 | 2.00 | 3.285 |
| 1963 | 2.00 | 3.425 |
| 1964 | 2.00 | 3.659 |
| 1965 | 2.00 | 3.800 |
| 1966 | 2.00 | 4.134 |
| 1967 | 2.00 | 4.165 |
| 1968 | 2.00 | 4.757 |
| 1969 | 2.00 | 5.232 |
| 1970 | 2.00 | 5.986 |
| 1971 | 2.00 | 5.210 |
| 1972 | 2.00 | 5.099 |
| 1973 | 3.72 | 6.129 |
| 1974 | 4.52 | 7.030 |
| 1975 | 4.42 | 6.533 |
| 1976 | 4.02 | 6.559 |
| TQ | 3.92 | 6.591 |
| 1977 | 3.88 | 6.481 |
| 1978 | 4.35 | 7.388 |
| 1979 | 4.27 | 8.592 |
| 1980 | 4.37 | 9.608 |
| 1981 | 4.38 | 12.435 |
| 1982 | 4.48 | 12.082 |
| 1983 | 4.90 | 10.850 |
| 1984 | 4.95 | 11.383 |
| 1985 | 4.99 | 10.383 |

*Source: Monthly Statement of Public Debt, U.S. Department of the Treasury.

Community Development Survey. REA asked borrowers to determine the extent to which they assisted in community development projects during 1984.

Eighty-two percent of the systems responded, furnishing this information: A total of 1,567 job-related projects were assisted during FY 84. By category, they included:

| | |
|---|---|
| Agriculture | 149 |
| Forestry | 35 |
| Recreation | 193 |
| Housing | 158 |
| Community Facilities | 287 |
| Health Facilities | 55 |
| Other Commercial Enterprises and Industries | 640 |

These projects, in turn, were associated with 47,066 jobs directly and an additional 30,593 jobs indirectly, a total of 77,659 jobs in various rural communities. The frequency of job-related assistance followed this pattern:

1. Securing or providing development assistance.
2. Securing or providing plant design or other technical assistance.
3. Providing office and meeting space, typing, clerical or similar assistance.
4. Securing or providing management assistance.
5. Arranging financing.
6. Assisting in obtaining industrial sites.

During FY 84 a total of 1,373 system directors, managers and employees were active in community service projects. Assistance was provided 817 community groups, involving 4,233 different community services. Primarily, they were:

1. Contributions of time, money, equipment and materials.
2. Providing meeting space, office equipment and clerical assistance.
3. Technical assistance, training, information, marketing and promotion.
4. Project development and planning.

Response to the survey indicates that the tradition of voluntarism remains strong among rural utility systems. Preliminary evidence suggests that borrowers were just as active during 1985 although, because of overriding economic conditions in rural areas, job creation may not have been as high.

Technical Standards. During FY 85 REA undertook a study of its technical standards-setting to determine whether REA's current role is essential or whether standards-setting can be accomplished by the private sector. The study is still underway.

## ELECTRIC

Background. From 1935 through FY 85 REA approved nearly $19 billion in direct and insured electrification loans and an additional $32 billion in commitments to guarantee loans made by other lenders. Borrowers received $7.1 billion in long-term financing from lenders without an REA guarantee.

Objectives. The objectives of the rural electrification program during FY 84-85 have been to target assistance more closely to need, build borrower financial strength, and minimize regulation.

Administrative actions during FY 84-85 achieved the following:

- Gave distribution, subtransmission and related facilities priority in applications for insured loan funds;
- Eliminated financing of office facilities;
- Emphasized to borrowers the importance of higher TIER levels;
- Proposed changes in loan criteria and ratios of funding;
- Required new loan repayments on a monthly basis instead of quarterly;
- Reorganized staff to increase program monitoring/control and loan fund auditing;
- Required that supplemental loans bear the same maturity date and be amortized in the same manner as the REA concurrent loan;
- Reduced the principal deferment period on loans from 3 years to 2; and
- Requested an expanded audit of the electric program to be used as a basis for reviewing internal procedures.

Loans. During FY 84, 266 insured electrification loans were approved totaling $850 million. There were also 15 commitments to guarantee loans amounting to $897.2 million. During FY 85, 169 insured loans were approved totaling $562 million, and 4 commitments guaranteeing nearly $75 million from non-REA lenders. These loans are summarized in Tables 24 and 25.

During FY 84 insured loans amounted to nearly $730 million for distribution borrowers and $120 million for power supply borrowers. In FY 85 insured loans amounted to $529 million for distribution borrowers and $33 million for power supply borrowers. That year the loan guarantee commitments for power supply purposes included $5 million to distribution borrowers.

As of December 31, 1984, REA had provided financing to 1,106 rural electric borrowers in 46 states, Puerto Rico, and the Virgin Islands. Of these borrowers, 993 had loans outstanding to REA and were providing service to nearly 11 million consumers over more than 2 million miles of line and employing more than 56,000 full-time employees. Of the 993 active borrowers, 930 were engaged in operating distribution systems primarily, while 63 were engaged in operating generation and transmission systems. During FY 85, borrowers added 255,012 new consumers, 16,517 miles of line and more than 59 megawatts (MW) of new generating capacity. Status of the loans during FY 84-85 is shown in Tables 26 and 27.

Table 24. REA Insured Electric Loans - FY 84 and FY 85

| | FY 84 | | | FY 85 | |
|---|---|---|---|---|---|
| Locality | Number | Amount | Locality | Number | Amount |
| UNITED STATES | 266 | $850,000,000 | United States | 169 | $562,029,000 |
| Alabama | 3 | 4,557,000 | Alabama | 4 | 7,919,000 |
| Alaska | 6 | 60,202,000 | Alaska | 2 | 39,586,000 |
| Arizona | 1 | 4,664,000 | Arizona | 1 | 3,124,000 |
| Arkansas | 4 | 9,926,000 | Arkansas | 2 | 7,791,000 |
| California | 1 | 2,691,000 | Colorado | 1 | 1,267,000 |
| Colorado | 6 | 25,533,000 | Delaware | 1 | 3,107,000 |
| Florida | 10 | 43,188,000 | Florida | 5 | 38,762,000 |
| Georgia | 26 | 98,435,000 | Georgia | 18 | 62,934,000 |
| Idaho | 1 | 1,283,000 | Idaho | 1 | 2,078,000 |
| Illinois | 7 | 4,220,000 | Illinois | 6 | 11,353,000 |
| Indiana | 9 | 9,722,000 | Indiana | 5 | 3,809,000 |
| Iowa | 6 | 14,005,000 | Iowa | 8 | 9,695,000 |
| Kansas | 6 | 11,387,000 | Kansas | 5 | 10,570,000 |
| Kentucky | 11 | 40,203,000 | Kentucky | 4 | 3,996,000 |
| Louisiana | 4 | 18,670,000 | Louisiana | 4 | 24,897,000 |
| Maine | 1 | 265,000 | Maine | 1 | 501,000 |
| Maryland | 1 | 6,502,000 | Michigan | 7 | 13,121,000 |
| Michigan | 4 | 4,852,000 | Minnesota | 10 | 23,150,000 |
| Minnesota | 14 | 26,204,000 | Mississippi | 3 | 9,049,000 |
| Mississippi | 3 | 9,589,000 | Missouri | 2 | 4,664,000 |
| Missouri | 7 | 7,603,000 | Montana | 8 | 19,899,000 |
| Montana | 7 | 12,283,000 | Nevada | 3 | 6,408,000 |
| Nebraska | 5 | 20,111,000 | New Mexico | 2 | 1,113,000 |
| Nevada | 1 | 3,926,000 | North Carolina | 7 | 24,207,000 |
| New Hampshire | 1 | 7,927,000 | North Dakota | 2 | 4,532,000 |
| New Jersey | 1 | 1,050,000 | Ohio | 5 | 6,503,000 |
| New Mexico | 9 | 18,460,000 | Oklahoma | 5 | 16,975,000 |
| New York | 2 | 2,139,000 | Oregon | 1 | 1,003,000 |
| North Carolina | 9 | 29,943,000 | Pennsylvania | 5 | 8,647,000 |
| North Dakota | 7 | 21,851,000 | South Carolina | 7 | 54,775,000 |
| Ohio | 6 | 10,192,000 | South Dakota | 7 | 8,513,000 |
| Oklahoma | 12 | 81,442,000 | Tennessee | 2 | 6,759,000 |
| Pennsylvania | 4 | 11,430,000 | Texas | 17 | 107,904,000 |
| South Carolina | 10 | 29,175,000 | Vermont | 1 | 1,981,000 |
| South Dakota | 5 | 15,762,000 | Virginia | 1 | 518,000 |
| Tennessee | 2 | 4,080,000 | Washington | 1 | 3,354,000 |
| Texas | 26 | 87,515,000 | Wisconsin | 4 | 3,727,000 |
| Utah | 1 | 3,384,000 | Wyoming | 1 | 3,838,000 |
| Vermont | 1 | 1,048,000 | | | |
| Virginia | 4 | 12,806,000 | | | |
| Washington | 3 | 1,089,000 | | | |
| West Virginia | 1 | 403,000 | | | |
| Wisconsin | 12 | 14,280,000 | | | |
| Wyoming | 5 | 10,164,000 | | | |
| Puerto Rico | 1 | 45,839,000 | | | |

Table 25. REA Electric Loan Guarantees - FY 84 and FY 85

| FY 84 | | | FY 85 | | |
|---|---|---|---|---|---|
| Locality | Number | Amount | Locality | Number | Amount |
| UNITED STATES | 15 | $897,205,000 | UNITED STATES | 4 | $74,607,000 |
| Arkansas | 1 | 55,055,000 | Alaska | 1 | 18,120,000 |
| Colorado | 1 | 65,140,000 | Kansas | 1 | 10,000,000 |
| Georgia | 1 | 51,946,000 | North Carolina | 1 | 4,987,000 |
| Illinois | 2 | 285,981,000 | Pennsylvania | 1 | 41,500,000 |
| Indiana | 1 | 51,000,000 | | | |
| Iowa | 3 | 66,233,000 | | | |
| Kentucky | 1 | 6,975,000 | | | |
| Michigan | 1 | 177,500,000 | | | |
| Montana | 2 | 1,080,000 | | | |
| New Mexico | 1 | 109,402,000 | | | |
| Oklahoma | 1 | 26,893,000 | | | |

Table 26. Electric Loan Fund Advances and Construction Progress

| | 1984 | 1985 |
|---|---|---|
| Advances on Insured Loans | $ 592,202,230 | $ 661,212,175 |
| Advances on Loan Guarantees | 2,351,569,000 | 2,041,908,380 |
| New Consumers | 280,957 | 255,012 |
| New Miles Energized | 24,391 | 16,517 |
| New MW Generating Capacity Financed | 6 | 59 |

Table 27. Cumulative Payments: Insured Electric Loans

| | 1984 | 1985 |
|---|---|---|
| Payments: | | |
| Principal | $5,376,826,419 | $5,704,796,106 |
| Interest | 4,240,472,294 | 4,658,449,043 |
| Payments ahead of schedule | 50,675,999 | 55,492,754 |
| Payments overdue more than 30 days | -- | 98,254,035 |
| Interest and principal lost on two foreclosures | 44,478 | 44,478 |

Discretionary Loans. During FY 84, REA approved 11 discretionary loans; during FY 85, 3 were approved. At the discretion of the Administrator, the loans described in the next two tables were made for reasons that include extreme financial hardship, high area unemployment, extension of central station service in unserved areas, high cost of power, high retail rates, low per capita income, and storm damage.

Table 28. Discretionary Loans
FY 85

| State | Borrower | Amount | Interest Rate |
|---|---|---|---|
| Maine | Fox Islands Electric Cooperative, Inc. | $ 501,000 | 5% |
| Michigan | The Ontonagon Co. Rural Electrification Association | $1,116,000 | 5% |
| Nevada | Wells Rural Electric Company | $1,981,000 | 2% |

Table 29. Discretionary Loans
FY 84

| State | Borrower | Amount | Interest Rate |
|---|---|---|---|
| Alaska | Kotzebue Electric Association, Inc. | $ 724,000 | 5% |
| Alaska | Nushagak Electric Cooperative, Inc. | $ 2,152,000 | 5% |
| Maine | Union River Electric Cooperative, Inc. | $ 265,000 | 5% |
| Texas | Robertson Electric Cooperative, Inc. | $ 3,685,000 | 5% |
| Wisconsin | Washington Island Electric Co-operative, Inc. | $ 261,000 | 5% |
| Puerto Rico | Puerto Rico Electric Power Authority | $45,839,000 | 5% |
| Alaska | Kodiak Electric Association, Inc. | $ 5,800,000 | 2% |
| Alaska | Tlingit - Haida Regional Electrical Authority | $ 1,295,000 | 2% |
| Michigan | The Ontonagon County Rural Electrification Assn. | $ 403,000 | 2% |
| North Dakota | Cavalier Rural Electric Cooperative, Inc. | $ 1,531,000 | 2% |
| Texas | Robertson Electric Cooperative, Inc. | $ 3,592,000 | 2% |

Energy Resource Conservation Loans. Under a policy adopted in June 1980, borrowers can extend their scheduled repayments of principal to REA if they make low-interest loans to consumers for residential energy conservation additions or improvements. By the end of FY 85 nearly 16,000 energy conservation loans had been made by borrowers, deferring nearly $26 million in principal payments.

Financial Development. Since 1948, the typical borrower has more than doubled the number of miles of line operated and more than tripled the number of consumers served. As of December 31, 1984, the average borrower had 1,883 miles of line and 7,427 consumers. Seventy-one borrowers had fewer than 2,000 consumers, and 32 had more than 35,000 consumers.

Distribution borrowers showed strong financial improvement. Their composite TIER increased from 2.60 in FY 84 to 2.78, the highest ratio since 1977. Net margins from distribution operations reached an all-time high of $884 million. Power supply borrowers also performed well financially although there were individual cases in which borrowers faced increasing construction costs and the cancellation of construction.

By the end of FY 85, the percentage distribution of kWh sold, revenue, and type of consumer reported by distribution systems was as shown in Table 26.

Table 30. Distribution System Characteristics

| Type of Consumer | Consumers | kWh Sold | Revenue |
|---|---|---|---|
| Residential, Farm and Non-Farm | 90.5% | 61.6% | 64.6% |
| Commercial and Industrial, Small | 7.4 | 16.7 | 17.6 |
| Commercial and Industrial, Large | 0.2 | 16.4 | 12.2 |
| Other | 1.9 | 5.3 | 5.6 |
| Total | 100.0% | 100.0% | 100.0% |

As of December 31, 1984, the composite net worth of electric borrowers was $7.4 billion or 14.5 percent of total assets, compared with nearly $1.7 billion or 27.0 percent of assets in 1970. Distribution borrowers had a composite net worth of $6.1 billion or 33.6 percent of assets as of December 31, 1984, compared with $1.6 billion or 34.3 percent of assets in 1970. Distribution borrowers' composite net worth was 31.6 percent of assets in 1983.

Revenues. Total revenue per kWh for farm and residential consumers increased less than 4 percent in FY 84 compared to increases of nearly 9 percent in 1983 and nearly 13 percent in 1982. Actual consumption of electricity by REA distribution borrowers in the last decade is shown in Tables 31 and 32.

Supplemental Financing. REA-financed power supply systems continued to use private sources to meet a portion of their capital requirements. Using leveraged leases, pollution control revenue bonds and similar financing arrangements, power supply borrowers obtained more than $700 million in financing from the private sector during FY 84 and about $2.8 billion in FY 85. Of these amounts, they received about $46 million from non-REA sources as additional payments under previously approved safe harbor leases. These funds were applied as payments on indebtedness or in lieu of future advances on loans guaranteed by REA.

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Table 31. Average Monthly kWh Consumption Per Residential Consumer
REA Distribution Borrowers

| STATE | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| United States | 803 | 840 | 866 | 910 | 937 | 919 | 935 | 901 | 905 | 896 | 914 |
| Alabama | 890 | 899 | 936 | 991 | 1003 | 917 | 967 | 923 | 890 | 887 | 918 |
| Alaska | 847 | 936 | 939 | 936 | 928 | 909 | 943 | 895 | 940 | 866 | 809 |
| Arizona | 571 | 580 | 576 | 584 | 601 | 593 | 579 | 571 | 517 | 517 | 540 |
| Arkansas | 660 | 715 | 713 | 784 | 824 | 786 | 859 | 778 | 802 | 800 | 806 |
| California | 788 | 839 | 864 | 875 | 892 | 945 | 921 | 869 | 878 | 823 | 808 |
| Colorado | 596 | 638 | 678 | 696 | 724 | 795 | 778 | 734 | 777 | 755 | 793 |
| Connecticut | | | | | | | | | | | |
| Delaware | 700 | 725 | 736 | 782 | 809 | 756 | 745 | 717 | 680 | 697 | 721 |
| Florida | 723 | 738 | 758 | 804 | 829 | 801 | 811 | 820 | 773 | 788 | 794 |
| Georgia | 831 | 847 | 864 | 901 | 903 | 854 | 909 | 927 | 891 | 906 | 910 |
| Hawaii | | | | | | | | | | | |
| Idaho | 1009 | 1077 | 1138 | 1135 | 1174 | 1233 | 1143 | 1077 | 1099 | 982 | 1028 |
| Illinois | 821 | 899 | 920 | 979 | 996 | 987 | 981 | 929 | 957 | 949 | 962 |
| Indiana | 896 | 967 | 999 | 1066 | 1071 | 1079 | 1068 | 1029 | 1038 | 1012 | 1022 |
| Iowa | 1077 | 1137 | 1160 | 1198 | 1273 | 1311 | 1251 | 1204 | 1280 | 1249 | 1222 |
| Kansas | 730 | 778 | 786 | 781 | 828 | 804 | 838 | 738 | 756 | 782 | 761 |
| Kentucky | 810 | 855 | 892 | 975 | 1009 | 971 | 995 | 942 | 931 | 930 | 951 |
| Louisiana | 728 | 785 | 831 | 933 | 1001 | 996 | 1049 | 1028 | 1001 | 989 | 991 |
| Maine | 310 | 324 | 336 | 348 | 358 | 368 | 373 | 371 | 369 | 361 | 370 |
| Maryland | 756 | 777 | 825 | 872 | 891 | 878 | 896 | 877 | 872 | 898 | 926 |
| Massachusetts | | | | | | | | | | | |
| Michigan | 511 | 520 | 548 | 530 | 526 | 530 | 519 | 512 | 509 | 502 | 516 |
| Minnesota | 829 | 874 | 912 | 932 | 963 | 985 | 942 | 919 | 958 | 932 | 938 |
| Mississippi | 822 | 845 | 868 | 921 | 927 | 894 | 921 | 914 | 905 | 898 | 925 |
| Missouri | 667 | 739 | 754 | 806 | 854 | 847 | 877 | 818 | 851 | 863 | 881 |
| Montana | 858 | 934 | 946 | 981 | 1062 | 1095 | 1039 | 983 | 1076 | 989 | 1049 |
| Nebraska | 947 | 1014 | 1010 | 1022 | 1094 | 1127 | 1092 | 1056 | 1136 | 1140 | 1130 |
| Nevada | 726 | 794 | 800 | 845 | 876 | 894 | 907 | 913 | 940 | 912 | 941 |
| New Hampshire | 487 | 475 | 514 | 505 | 523 | 517 | 511 | 504 | 507 | 491 | 512 |
| New Jersey | 636 | 688 | 745 | 763 | 690 | 715 | 715 | 692 | 700 | 707 | 713 |
| New Mexico | 376 | 402 | 420 | 434 | 441 | 457 | 460 | 444 | 465 | 549 | 479 |
| New York | 725 | 774 | 837 | 849 | 863 | 856 | 852 | 856 | 847 | 805 | 831 |
| North Carolina | 729 | 754 | 788 | 830 | 839 | 818 | 860 | 854 | 832 | 844 | 853 |
| North Dakota | 985 | 1068 | 1123 | 1145 | 1224 | 1288 | 1225 | 1206 | 1359 | 1276 | 1282 |
| Ohio | 944 | 984 | 1013 | 1049 | 1052 | 1026 | 1002 | 971 | 968 | 947 | 992 |
| Oklahoma | 705 | 774 | 795 | 839 | 895 | 862 | 927 | 848 | 892 | 886 | 908 |
| Oregon | 1306 | 1381 | 1396 | 1375 | 1369 | 1436 | 1331 | 1250 | 1237 | 1084 | 1139 |
| Pennsylvania | 665 | 685 | 715 | 723 | 730 | 720 | 708 | 697 | 694 | 674 | 692 |
| Rhode Island | | | | | | | | | | | |
| South Carolina | 749 | 781 | 823 | 901 | 928 | 906 | 981 | 980 | 942 | 947 | 961 |
| South Dakota | 936 | 1018 | 1040 | 1043 | 1133 | 1171 | 1096 | 1043 | 1142 | 1100 | 1113 |
| Tennessee | 1201 | 1209 | 1245 | 1318 | 1332 | 1235 | 1240 | 1158 | 1119 | 1129 | 1153 |
| Texas | 639 | 664 | 665 | 725 | 767 | 745 | 812 | 775 | 814 | 793 | 856 |
| Utah | 688 | 770 | 827 | 792 | 847 | 936 | 879 | 811 | 859 | 842 | 899 |
| Vermont | 751 | 738 | 759 | 731 | 725 | 703 | 705 | 711 | 693 | 669 | 682 |
| Virginia | 733 | 763 | 808 | 843 | 858 | 845 | 847 | 849 | 842 | 851 | 883 |
| Washington | 1429 | 1528 | 1574 | 1571 | 1605 | 1695 | 1597 | 1483 | 1512 | 1340 | 1460 |
| West Virginia | 481 | 498 | 474 | 484 | 498 | 519 | 509 | 519 | 526 | 530 | 564 |
| Wisconsin | 813 | 843 | 868 | 863 | 894 | 911 | 905 | 890 | 918 | 911 | 915 |
| Wyoming | 724 | 789 | 843 | 870 | 930 | 968 | 940 | 874 | 957 | 919 | 958 |

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Table 32. Average Monthly kWh Consumption Per Total Consumers
REA Distribution Borrowers

| STATE | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| United States | 1149 | 1191 | 1254 | 1313 | 1339 | 1335 | 1361 | 1334 | 1328 | 1317 | 1366 |
| Alabama | 1037 | 1053 | 1099 | 1188 | 1218 | 1129 | 1183 | 1172 | 1142 | 1144 | 1185 |
| Alaska | 1588 | 1855 | 1913 | 1957 | 1927 | 1935 | 1991 | 1954 | 2082 | 1969 | 1890 |
| Arizona | 1921 | 1665 | 2143 | 2089 | 2050 | 2407 | 2253 | 2533 | 2198 | 1734 | 1881 |
| Arkansas | 861 | 923 | 940 | 1020 | 1072 | 1060 | 1173 | 1091 | 1115 | 1125 | 1147 |
| California | 1255 | 1255 | 1331 | 1403 | 1400 | 1523 | 1423 | 1454 | 1355 | 1243 | 1247 |
| Colorado | 1187 | 1274 | 1430 | 1465 | 1538 | 1498 | 1470 | 1406 | 1439 | 1381 | 1488 |
| Connecticut | | | | | | | | | | | |
| Delaware | 761 | 786 | 790 | 837 | 861 | 812 | 810 | 783 | 751 | 772 | 808 |
| Florida | 917 | 945 | 977 | 1033 | 1060 | 1033 | 1041 | 1041 | 987 | 1001 | 1013 |
| Georgia | 952 | 975 | 1000 | 1047 | 1056 | 1024 | 1100 | 1155 | 1120 | 1147 | 1165 |
| Hawaii | | | | | | | | | | | |
| Idaho | 1645 | 1637 | 1792 | 1900 | 1925 | 2054 | 1799 | 1868 | 1870 | 1789 | 2080 |
| Illinois | 1044 | 1126 | 1159 | 1234 | 1250 | 1259 | 1240 | 1188 | 1217 | 1210 | 1245 |
| Indiana | 1048 | 1129 | 1183 | 1258 | 1258 | 1279 | 1269 | 1233 | 1246 | 1227 | 1250 |
| Iowa | 1232 | 1303 | 1350 | 1401 | 1491 | 1545 | 1452 | 1394 | 1465 | 1438 | 1408 |
| Kansas | 1250 | 1324 | 1405 | 1396 | 1485 | 1457 | 1481 | 1489 | 1478 | 1519 | 1545 |
| Kentucky | 2331 | 2302 | 2349 | 2446 | 2429 | 2473 | 2545 | 2480 | 2242 | 2270 | 2430 |
| Louisiana | 1066 | 1122 | 1176 | 1299 | 1207 | 1212 | 1280 | 1293 | 1265 | 1261 | 1258 |
| Maine | 559 | 676 | 665 | 556 | 569 | 556 | 597 | 525 | 496 | 565 | 552 |
| Maryland | 1137 | 1180 | 1235 | 1284 | 1302 | 1291 | 1309 | 1298 | 1278 | 1335 | 1375 |
| Massachusetts | | | | | | | | | | | |
| Michigan | 588 | 600 | 634 | 618 | 622 | 624 | 613 | 611 | 612 | 615 | 641 |
| Minnesota | 966 | 1025 | 1079 | 1108 | 1157 | 1190 | 1140 | 1112 | 1147 | 1133 | 1152 |
| Mississippi | 1133 | 1179 | 1241 | 1347 | 1369 | 1333 | 1345 | 1335 | 1305 | 1299 | 1350 |
| Missouri | 916 | 1003 | 1040 | 1105 | 1151 | 1153 | 1189 | 1123 | 1140 | 1163 | 1192 |
| Montana | 1195 | 1256 | 1288 | 1324 | 1378 | 1450 | 1384 | 1359 | 1467 | 1403 | 1497 |
| Nebraska | 1485 | 1553 | 1653 | 1564 | 1671 | 1638 | 1681 | 1547 | 1572 | 1605 | 1692 |
| Nevada | 2940 | 2931 | 2573 | 3083 | 2614 | 2403 | 2491 | 2541 | 2307 | 2160 | 2255 |
| New Hampshire | 596 | 582 | 626 | 621 | 647 | 645 | 651 | 661 | 654 | 647 | 661 |
| New Jersey | 687 | 744 | 820 | 838 | 765 | 792 | 818 | 794 | 815 | 827 | 840 |
| New Mexico | 1088 | 1187 | 1387 | 1449 | 1483 | 1497 | 1555 | 1491 | 1478 | 1388 | 1426 |
| New York | 752 | 798 | 862 | 876 | 896 | 894 | 888 | 895 | 879 | 841 | 865 |
| North Carolina | 855 | 876 | 926 | 977 | 992 | 971 | 1011 | 1006 | 987 | 1010 | 1029 |
| North Dakota | 1515 | 1650 | 1722 | 1761 | 1880 | 2012 | 1996 | 2043 | 2286 | 2298 | 2380 |
| Ohio | 1078 | 1143 | 1212 | 1248 | 1252 | 1234 | 1186 | 1164 | 1181 | 1195 | 1278 |
| Oklahoma | 1108 | 1178 | 1241 | 1293 | 1353 | 1309 | 1383 | 1318 | 1370 | 1357 | 1386 |
| Oregon | 2229 | 2399 | 2509 | 2553 | 2378 | 2554 | 2359 | 2281 | 2166 | 1932 | 2038 |
| Pennsylvania | 713 | 737 | 775 | 788 | 800 | 803 | 795 | 789 | 792 | 770 | 799 |
| Rhode Island | | | | | | | | | | | |
| South Carolina | 850 | 897 | 963 | 1057 | 1089 | 1069 | 1148 | 1156 | 1112 | 1129 | 1150 |
| South Dakota | 1075 | 1181 | 1270 | 1283 | 1375 | 1435 | 1404 | 1340 | 1422 | 1373 | 1404 |
| Tennessee | 1586 | 1586 | 1656 | 1755 | 1771 | 1698 | 1693 | 1614 | 1561 | 1596 | 1647 |
| Texas | 945 | 927 | 978 | 1047 | 1099 | 1066 | 1194 | 1149 | 1196 | 1161 | 1260 |
| Utah | 3203 | 3472 | 3818 | 3949 | 4240 | 4373 | 4487 | 4450 | 4433 | 4544 | 4829 |
| Vermont | 826 | 805 | 823 | 796 | 812 | 789 | 809 | 822 | 776 | 752 | 776 |
| Virginia | 992 | 1026 | 1096 | 1138 | 1170 | 1181 | 1265 | 1264 | 1266 | 1286 | 1338 |
| Washington | 2392 | 2649 | 2969 | 2876 | 2725 | 2925 | 2670 | 2614 | 2555 | 2302 | 2520 |
| West Virginia | 506 | 527 | 515 | 552 | 523 | 562 | 553 | 569 | 577 | 572 | 610 |
| Wisconsin | 942 | 984 | 1023 | 1026 | 1058 | 1075 | 1023 | 984 | 1016 | 1020 | 1026 |
| Wyoming | 2676 | 2710 | 2880 | 2949 | 3020 | 3141 | 3160 | 3100 | 3213 | 3220 | 3334 |

In FY 84, REA approved about $168 million in pollution control revenue bonds for various borrowers at fixed and variable interest rates. One borrower entered into a leveraged lease arrangement valued at more than $522 million.

During FY 85, non-REA sources of financing provided power supply borrowers with about $2.17 billion in long-term and interim pollution control bond financing of which $1.82 billion was for facilities and the balance for debt service reserves and financing expenses. As a result of bond financing, about $1.2 billion in previously approved REA guaranteed loans will be rescinded, and $380 million in guaranteed loans will be repaid ahead of schedule. About $230 million was long-term financing that obviated the need for REA guaranteed loans. Power supply borrowers also entered into leveraged lease transactions covering $660 million in assets, resulting in $450 million in repayments ahead of schedule and rescission of $53 million in unadvanced loan funds.

Over the past few years, safe harbor leases, leveraged leases and pollution control bond financing, together with other types of non-REA financing, have improved borrower equity positions and reduced the demand for REA financial assistance.

Electric Rates. During 1984, 184 distribution borrowers reported retail rate changes beyond the automatic changes that result from power purchases and other flow-throughs. The changes included 172 estimated annual increases of $135 million and 22 estimated annual decreases of $9 million. Purchased power costs reflected continued capital-intensive supply facilities and costs associated with energy sources. In some cases power costs translated into high rate increases. This, coupled with generally slow load growth and the poor farm economy, has caused dissatisfaction in some rural areas. While rate increases in FY 85 were proportionately less than in FY 84, some dissatisfaction remains.

A comparison of the residential electric rates of REA borrowers with nearby public and private utilities as of January 1, 1985, is shown in Table 33. As of that date, nearly 76 percent of all REA borrowers had rates higher than those of comparable utilities. The remaining had rates that were equal to or lower than the rates of other utilities.

REA helped borrowers comply with Sections 201 and 210 of the Public Utility Regulatory Policy Act concerning cogeneration and small power production. Emphasis on improving rate structures and equitable allocation among classes of customers has continued, with increasingly beneficial results. Research also was conducted on capacity utilization and a paper was published on marketing, rate design and the benefits obtained from system economics. Increased emphasis was placed on developing rate structures that would lead to improved financial conditions for borrowers.

In FY 84, REA sponsored a seminar attended by more than 100 electric rate consultants, borrowers, state commissioners and other personnel. Its purpose was to assure consistency of borrower rate design with guidelines based on national energy policy and rapidly changing economic developments. Special emphasis was placed on marketing energy for the best utilization of resources.

Table 33. Average State Residential Bill per 1,000 kWh and State Rankings: January 1, 1985

| State | Private | | Public | | REA Borrowers | | |
|---|---|---|---|---|---|---|---|
| | Bill | Rank | Bill | Rank | Bill | Rank | |
| Alabama | 68.44 | 24 | 50.99 | 13 | 65.94 | 14 | o |
| Alaska | 78.00 | 37 | 65.85 | 32 | 96.41 | 45 | + |
| Arizona | 76.32 | 34 | 67.48 | 34 | 93.09 | 41 | + |
| Arkansas | 62.70 | 18 | 61.86 | 27 | 76.19 | 30 | + |
| California | 90.14 | 45 | 67.47 | 33 | 70.08 | 16 | o |
| Colorado | 70.68 | 29 | 47.36 | 9 | 72.14 | 22 | + |
| Connecticut | 102.47 | 48 | 81.92 | 42 | | | |
| Delaware | 95.04 | 47 | 82.09 | 43 | 82.76 | 37 | o |
| D.C. | 55.43 | 8 | | | | | |
| Florida | 82.04 | 39 | 76.07 | 41 | 91.23 | 40 | + |
| Georgia | 60.20 | 14 | 50.00 | 12 | 65.63 | 13 | + |
| Hawaii | 109.95 | 49 | | | | | |
| Idaho | 39.94 | 1 | 37.02 | 5 | 54.11 | 4 | + |
| Illinois | 67.94 | 23 | 69.37 | 37 | 95.35 | 42 | + |
| Indiana | 70.18 | 28 | 56.51 | 20 | 77.31 | 31 | + |
| Iowa | 73.60 | 32 | 57.52 | 21 | 78.97 | 34 | + |
| Kansas | 68.50 | 25 | 69.84 | 38 | 80.51 | 36 | + |
| Kentucky | 56.24 | 9 | 48.08 | 10 | 63.17 | 9 | + |
| Louisiana | 59.60 | 13 | 70.39 | 39 | 86.27 | 38 | + |
| Maine | 77.85 | 35 | 65.14 | 31 | 102.96 | 46 | + |
| Maryland | 65.41 | 19 | 59.61 | 26 | 74.17 | 27 | + |
| Massachusetts | 89.29 | 42 | 83.67 | 45 | | | |
| Michigan | 71.80 | 30 | 60.14 | 26 | 77.35 | 32 | + |
| Minnesota | 62.32 | 17 | 55.23 | 18 | 77.79 | 33 | + |
| Mississippi | 54.53 | 7 | 53.04 | 16 | 63.19 | 10 | + |
| Missouri | 58.80 | 11 | 54.68 | 17 | 64.21 | 11 | + |
| Montana | 44.75 | 2 | | | 53.64 | 3 | + |
| Nebraska | | | 55.35 | 19 | 71.44 | 20 | + |
| Nevada | 67.08 | 20 | 41.37 | 7 | 61.94 | 8 | o |
| New Hampshire | 88.61 | 41 | 82.32 | 43 | 87.23 | 39 | o |
| New Jersey | 94.84 | 46 | 85.99 | 47 | 95.62 | 43 | + |
| New Mexico | 77.97 | 36 | 75.99 | 40 | 74.27 | 28 | - |
| New York | 112.35 | 50 | 34.33 | 2 | 56.28 | 6 | o |
| North Carolina | 67.54 | 22 | 69.17 | 36 | 73.30 | 24 | + |
| North Dakota | 62.10 | 16 | 36.81 | 4 | 71.01 | 18 | + |
| Ohio | 76.00 | 33 | 64.88 | 29 | 70.84 | 17 | o |
| Oklahoma | 57.48 | 10 | 64.44 | 28 | 71.07 | 19 | + |
| Oregon | 47.89 | 4 | 33.74 | 1 | 54.92 | 5 | + |
| Pennsylvania | 81.76 | 38 | 65.08 | 30 | 79.50 | 35 | o |
| Rhode Island | 83.74 | 40 | 113.73 | 48 | | | |
| South Carolina | 69.14 | 26 | 58.55 | 24 | 71.59 | 21 | + |
| South Dakota | 72.71 | 31 | 38.76 | 6 | 72.87 | 23 | + |
| Tennessee | 50.99 | 6 | 46.89 | 8 | 48.87 | 1 | o |
| Texas | 69.89 | 27 | 68.05 | 35 | 73.57 | 26 | + |
| Utah | 89.87 | 43 | 49.19 | 11 | 57.33 | 7 | o |
| Vermont | 89.90 | 44 | 85.13 | 46 | 96.09 | 44 | + |
| Virginia | 67.35 | 21 | 57.61 | 22 | 74.72 | 29 | + |
| Washington | 45.90 | 3 | 35.04 | 3 | 50.77 | 2 | + |
| West Virginia | 59.15 | 12 | 52.56 | 15 | 65.95 | 15 | + |
| Wisconsin | 61.96 | 15 | 52.14 | 14 | 73.51 | 25 | + |
| Wyoming | 49.50 | 5 | 58.35 | 23 | 64.56 | 12 | + |
| U.S. Average | 79.39 | 0 | 60.51 | 0 | 72.20 | 0 | o |

+ indicates REA rates are higher than both private and public rates
o indicates REA rates are between private and public rates
- indicates REA rates are below both private and public rates

Mergers. Some borrowers were investigating the possibility of merging with other utilities as a measure of safety against potential financial difficulties. Because of economies of scale, considerable savings could be achieved.

Power Supply. During FY 84-85 borrowers experienced increased costs of power partly because of delays in construction, the addition of environmental and safety measures, longer construction time frames, higher interest rates and higher wages and equipment costs. Since 1974, the cost of building coal-fired plants tripled due largely to flue gas desulphurization and interest costs during construction delays. The cost of oil increased dramatically, the cost of coal nearly quadrupled, and gas was being withdrawn as a boiler fuel to save for home heating and cogeneration. As power costs, interest rates, and retail rates were rising, economic pressures to conserve energy greatly changed load growth characteristics, making obsolete earlier studies which had called for building numerous additional generating facilities.

REA worked with borrowers and others to develop financing packages that will allow the completion of economically viable plants. Two elements of a successful financial package are an adequate market for the plant's power and assurance that the plant is the most cost-effective source of incremental power available. REA does not consider the restructuring of financial terms a bailout and believes no precedent has been set for REA involvement in other projects.

In FY 84, REA guaranteed loans to Western Illinois Power Cooperative for $142.4 million and Soyland Power Cooperative for $143.6 million for cost increases in their 9.5 percent (90 MW) and 10.5 percent (100 MW) shares of Clinton Nuclear Plant. Wolverine Power Supply Cooperative in Michigan received a loan guarantee of $177.5 million for additional costs associated with its 220 MW share of the Enrico Fermi Nuclear Power Plant.

During the year, the Susquehanna Nuclear Plant obtained permission from the Nuclear Regulatory Commission to load fuel in Unit No. 2 and begin operations. Allegheny Electric Cooperative shares 105 MW of this unit. Grand Gulf Nuclear Unit No. 1 received permission to go up to full power; South Mississippi Power Cooperative owns a 125 MW share of this unit.

Coal-fired plants which completed construction during this period were Unit 1 (600 MW) of Seminole Electric Cooperative's Seminole Plant; Unit 3 (540 MW) at Big Cajun No. 2 of Cajun Electric Power Cooperative; Scherer No. 2 Power Plant in which Oglethorpe Power Corporation is participating (486 MW); and the Louisa Power Plant in which Central Iowa Power Cooperative owns 30 MW. Hoosier Energy Rural Electric Cooperative in Indiana also received a loan guarantee of $51 million to cover cost increases associated with its Merom coal-fired power plant.

Three Alaska distribution borrowers obtained loans for improvement and enlargement of their generating facilities: the Tlingit-Haida Regional Electrical Authority received a $1.3 million loan, part of which will improve generating facilities at Kake and Kassaan. Kotzebue Electric Association obtained a $724,000 loan, part of which will modify the power station at Kotzebue. Nushagak Electric Cooperative received a $2.2 million loan, part of which will enlarge the Dillingham power station.

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A loan guarantee of $11.3 million was made to Corn Belt Cooperative for improvements at three plants: the Duane Arnold nuclear plant and the Windom and Humboldt coal-fired plants. A loan guarantee was approved for Central Iowa Power Cooperative for $36.6 million to finance modifications at Duane Arnold nuclear plant and cost increases related to a 4.6 percent share of the Louisa coal-fired plant. A loan guarantee for nearly $2 million was approved for Colorado-Ute Electric Association to pay for improvements at the Craig and Hayden coal-fired plants. A loan guarantee of $55 million was approved for Arkansas Electric Cooperative Corporation for cost increases in their 35 percent share of Independence steam plant and their 50 percent share of the Flint Creek plant. The Plains Electric Generation and Transmission Cooperative received a $109 million loan guarantee commitment for construction of their Escalante coal-fired plant which was delayed.

In FY 85, REA guaranteed a loan to Allegheny Electric Cooperative for $41.5 million for the design and construction of the 20.3 MW Raystown hydroelectric plant. The Kansas Electric Power Cooperative of Topeka, Kansas, received a loan guarantee of $10 million for additional costs for its 69 MW share of the Wolf Creek nuclear plant. A new borrower, the Alaska Electric Generation and Transmission Cooperative, received a loan guarantee of more than $18 million for the Soldotna gas turbine.

During the year, the Fermi nuclear plant received permission from the Nuclear Regulatory Commission to load fuel; Wolverine Power Supply Cooperative in Michigan owns 187 MW of this plant. The River Bend nuclear plant also was granted permission to load fuel; Cajun Electric Power Coopertive owns 280 MW of this plant.

Twelve plants became commercial during FY 84-85:

Table 34. New Commercial Power Plants - FY 84-85

| Borrower | Project Name | MW | Fuel | State |
|---|---|---|---|---|
| Allegheny | Susquehanna #2 | 105 | Nuclear | PA |
| South Mississippi | Grand Gulf #1 | 125 | Nuclear | MS |
| North Carolina | Catawba | 644 | Nuclear | NC |
| Saluda River | Catawba | 215 | Nuclear | SC |
| Kansas | Wolf Creek | 69 | Nuclear | KS |
| Vermont G&T | North Hartland | 4 | Hydro | VT |
| Washington | Wrightsville | 1.025 | Hydro | VT |
| Plains G&T | Escalante | 215 | Coal | NM |
| Seminole | Seminole #2 | 600 | Coal | FL |
| Colorado-Ute | Craig #3 | 447 | Coal | CO |
| Arkansas | Independence | 245 | Coal | AR |
| Northeast Texas | Pirkey | 75 | Coal | TX |

Supplemental Resources. With the exception of hydroelectric power, development of renewable generating sources has been slow. Research and development are ongoing, and prototype facilities involving wind, solar, geothermal, tidal, biomass, and chemical fuel cells have been constructed. However, full-scale commercialization and long-term availability lie several years in the future.

During FY 84-85 the following hydroelectric projects were under construction by REA borrowers:

Table 35. Hydroelectric Plants Under Construction
FY 84

| Borrower | Project Name | MW | Stream | County | State |
|---|---|---|---|---|---|
| Washington Electric Coop. | Wrightsville | 1.0 | North Branch Winooski River | Washington | VT |
| Vermont Electric G&T Coop. | North Hartland | 4.0 | Ottauquechee River | Windsor | VT |
| French Broad Elec Membership Corp. | Capitola | 3.0 | French Broad River | Madison | NC |
| Broad River Rural Electric Coop. | Cherokee Falls | 3.5 | Broad River | Cherokee | SC |

Table 36. Hydroelectric Plants Under Construction
FY 85

| Borrower | Project Name | MW | Stream | County | State |
|---|---|---|---|---|---|
| French Broad Electric Coop | Capitola | 3.0 | French Broad River | Madison | NC |
| Broad River Rural Electric Coop | Cherokee Falls | 3.5 | Broad River | Cherokee | SC |
| Oglethorpe Power Corporation | Tallassee Shoals | 1.9 | Middle Oconee River | Clark & Jackson | GA |
| Oglethorpe Power Corporation | Whitewater | 0.5 | Whitewater Creek | Macon | GA |

Construction is also underway to rehabilitate Alabama Electric Cooperative's existing Gantt-Point A hydro project located on the Conecuh River in Crenshaw and Covington Counties, Alabama. The rehabilitation work will add 1 MW of capacity to the existing plant.

Engineering and Environment. REA provided technical and engineering support to the following activities during FY 84:

- developing data to support power plant guarantees;
- reviewing major project designs;
- evaluating project schedules and overruns;
- developing REA bulletins;
- maintaining the list of materials acceptable for REA financing;
- updating technical standards;
- participating in national code and standards activities; and
- codifying REA regulations.

Power plant costs have had a major impact on rate increases due to problems such as construction delays, higher interest costs, expensive design changes during construction and a high percentage of reserve capacity.

On March 13, 1984, REA issued environmental regulations superseding all previous regulations. The new regulations are meant to protect environmental values as mandated by federal laws/regulations, executive orders and judicial decisions and yet be more understandable to borrowers, reduce the paperwork burden on borrowers and minimize procedural requirements where no valid environmental purpose is served. The regulations will achieve an increased efficiency by adjusting the level of environmental review to the various categories of proposed projects. For many types of proposals, less stringent environmental review will not reduce the protection of environmental values.

Also in FY 84 REA instituted pilot training of borrowers on the preparation of environmental reports. In a series of workshops, REA staff explained what REA seeks in reports and discussed common problem areas. The goal of the training was to expedite preparation and review of the documents and reduce the resource and paperwork burden.

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Another area discussed with borrowers was the increasing number of lawsuits alleging negligence by public utilities in the construction, operation and maintenance of their facilities. The trend in verdicts appears to hold utilities to a higher degree of prudence in day-to-day management. With the increasing size of damage awards and spread of comparative liability theories (partial recovery by the injured party despite that party's own negligence), REA borrowers and other utilities are faced with greater exposure to lawsuits. This can be devastating to small systems, thereby adversely affecting REA's loan security.

During FY 85, REA continued to develop and review strategies to streamline the REA environmental review process. REA cooperated with the Advisory Council on Historic Preservation in developing agreements on more streamlined and less costly cultural resource reviews of proposed overhead and underground lines. The formulation of guidelines to assist borrowers and REA staff in complying with new and revised federal environmental laws and regulations was ongoing. To assist borrowers and their consultants in preparing environmental documents, REA conducted 10 workshops during the year. These efforts have resulted in a reduction in the amount of REA resources necessary to review a proposed project.

To encourage more active participation of federal agencies in the environmental review of projects proposed for REA financing and to comply with Council on Environmental Quality regulations, REA convened interagency meetings and site inspections with other federal agencies. During FY 85, REA held three interagency meetings and inspected seven generation plant, transmission corridor, and other facility sites with other federal agencies. REA also conducted four public scoping meetings.

Due to the slowdown in growth of electrical usage and the recent completion of many large generating facilities, there has been a sharp reduction in new generation planned. Consequently, during FY 85 no final environmental impact statements were issued and only one supplemental environmental impact statement was prepared. During this period there was one generation project, with a capacity of 600 MW together with associated transmission facilities of about 390 miles and mining operations, under environmental review. Two transmission projects, involving 190 miles of lines, were also under review. The generation project will require an environmental impact statement, and environmental impact statements may be issued for the transmission projects.

During FY 85 REA completed an environmental review of a coal-fired generation project in which a borrower was involved. While the Federal Energy Regulatory Commission had primary responsibility for preparing the environmental impact statement, REA was involved in the environmental review. The generation project involved 1,600 MW of power and 410 miles of high-voltage transmission line. During the year REA also cooperated in the preparation of environmental impact statements for two major transmission projects totaling 66 miles of line.

FY 85 saw substantial activity in the construction or upgrading of medium- to low-voltage transmission lines and substations (69 kV to 161 kV), short high-voltage lines, and small-scale power generation for which detailed

investigations of environmental impacts were required. REA procedures required the preparation of an environmental assessment and REA approval on environmental issues before each financing assistance package could be approved. During the year 14 projects involving 277 miles of transmission line, 9 substations, and 141 MW of electric generation were approved. Another six projects involving 34 miles of transmission line and 35 MW of generation were under review.

Borrowers were involved in the construction of about 24,000 miles of underground and overhead distribution lines. Although formal environmental documentation by REA was not required for these distribution lines, each project was reviewed for its environmental impact. Borrowers were required to provide information and evidence of consultation with concerned agencies to insure that appropriate protection was afforded wetlands, floodplains, endangered species, cultural resources, farmland, and other sensitive environmental resources. During the year, more than 1,000 environmental submissions from borrowers were reviewed. Financing assistance or other approval was not granted unless the environmental consequences were determined to be acceptable. In many cases, line rerouting and other mitigative actions were required to be incorporated into the projects.

Energy Utilization. Load management involves altering the pattern of electricity use to make the most economic use of generation, transmission and distribution systems. Effective load management can shift fuel dependency from limited to abundant energy sources, lower reserve requirements on generation and transmission capacity, improve reliability of service, and conserve capital needed for new production and distribution plants. REA encourages borrowers to develop load management programs, including consumer education efforts. Most efforts urge members to use less electricity during peak demand hours, promote more efficient appliances, schedule irrigation systems cooperatively, and ask consumers to use positive load controls on water heaters and air conditioners. REA makes loans for load control equipment after reviewing the technology and cost-benefit ratio for each system. To date, borrowers have invested nearly $100 million on positive load control systems. Many also are developing marketing programs to gain off-peak sales.

Four control systems are commonly used by REA borrowers:

- Supervisory Control and Data Acquisition (SCADA);
- SCADA with Automatic Generation Control;
- Energy Management and Control; and
- In-Plant or Direct Digital Control.

REA has spent considerable effort to insure that systems being built are consistent with the goals of providing reliable, effective, and economic service to the consumer.

Management Assistance. In FY 84-85, REA held two 4-day conferences for new managers of borrower systems. The conferences covered all facets of REA operations as well as appropriate regulations and procedures.

REA continued to help borrowers develop better management practices. Analytical tools such as the distribution expense comparison study and the distribution borrower statistical profile were prepared and distributed each year to all distribution borrowers to assist in analyzing operations. A plant investment analysis was included on the expense comparison study which compares a borrower's actual investment in plant with typical or expected investment by systems with similar characteristics. A merger model allows borrowers to estimate the financial effect of consolidation with other electric systems. A similar power supply statistical profile was distributed to generation and transmission borrowers. REA also produced an exception report to identify variances calling for close attention. More than 90 percent of all distribution borrowers now use computer-assisted financial forecasting through various data processing centers. This forecasting has reduced both time and effort needed by borrowers and REA staff. REA assisted the data centers and borrowers, especially with reprograming, to reflect policy changes. In addition to detailed financial information, the computer forecast provides a simple summary to assist boards of directors in their analysis and planning.

Load Forecasting. REA continued to improve methods for long-range forecasting of energy needs in rural areas. While load forecasting is essentially a borrower responsibility, REA encouraged the use of good forecasting methods and reviewed borrower studies of power requirements. REA also assisted the Electric Power Research Institute in developing manuals on forecasting techniques for small untilities. These manuals are now available to distribution borrowers. In addition, REA developed relatively simple forecasting models for use on small computers by distribution borrowers on their own or in cooperation with the power supplier. Borrowers have made increasing use of the models.

Construction Quality. To assure that borrowers' use of loan funds provides acceptable quality at minimum cost and that minimum oversight is needed by REA, REA maintains standards for distribution line construction and for certain types of transmission line construction. For most line construction, REA is able to advance funds based on certification by borrower's engineer that construction is in accord with REA standards.

In FY 85, REA proposed to eliminate timber treating plants and timber inspection agencies from REA Bulletin 43-5, List of Materials Acceptable for Use on Systems of REA Electrification Borrowers. Under the proposal, borrowers must ascertain that timber products comply with appropriate specifications. The List is published yearly in July, and supplements are issued quarterly. It contains more than 185 categories of material and equipment, and the products of more than 200 manufacturers are represented. During FY 84, 150 new product applications were considered for inclusion.

REA continued to contribute to standards of the American National Standards Institute and the National Electrical Safety Code, which are required in the construction of new lines and substations. The safety code is enforced by most governing bodies, and its provisions are generally used as minimum standards in court cases. In FY 84, REA participated in 22 official interpretations of the code. REA also worked with the American Wood

Preservers Association, the Society of Electrical Engineers, and the American Society for Testing and Materials in developing standards. Many of the standards evolving from national standards groups are incorporated into REA publications.

In FY 84, REA visited seven rural electric systems to test 150 transformers for compliance with REA specifications. Tests made included no-load losses, telephone influence factor and excitation current. Compliance was found to be improved over previous years, but serious problems still existed. Similar tests conducted in FY 85 showed a much higher degree of compliance with REA specifications, indicating that REA testing and discussions with manufacturers had been effective.

Corrosion. REA continued to promote self-sufficiency among borrowers in combating corrosion problems on underground distribution systems. Borrowers report significant corrosion of tinned copper neutral wires wound concentrically around underground power cable. Early failures and excessive maintenance costs are causing concern throughout the rural electric industry. Because of continuing environmental concerns related to the use of overhead facilities, utilities are installing increasing amounts of underground facilities. At the end of 1983, rural electric cooperatives were operating 175,118 kilometers (108,813 miles) of underground distribution.

In addition to assistance provided individual borrowers, REA has been active in the Appalachian Underground Corrosion Short Course at West Virginia University and in testing specialized materials for use in corrosion control.

## TELEPHONE

Nearly five million subscribers were receiving service from REA-financed systems at the end of December 1984. Of this total, 88 percent were receiving one-party service. Service in rural communities continues to be upgraded.

Table 37. Percent of Subscribers by Grade of Service

| Service | 1980 | 1981 | 1982 | 1983 | 1984 |
|---|---|---|---|---|---|
| 1-party ..... | 79.4% | 81.9% | 84.2% | 85.8% | 88.3% |
| 2-party ..... | 3.2 | 2.8 | 2.3 | 2.0 | 1.6 |
| 4- and 5-party ..... | 15.7 | 14.1 | 12.6 | 11.4 | 9.5 |
| 8-party (or more) ..... | 1.7 | 1.2 | 0.9 | 0.8 | 0.6 |

Upgraded service has resulted in an increase in long-distance calling which, in turn, has increased telephone revenues. Average long distance and access charge revenues per subscriber increased from $370.89 in 1983 to $402.24 in 1984, and the average local service revenue per subscriber increased from $186.39 to $191.71.

Loans. The percentage of farms with telephone service was about 96 percent in 1985. In keeping with subscriber demand, REA recommends four-party, flat-rate service as the minimum standard. However, increasing demand exists for

one-party service. Tables 38 and 39 list the loans approved in FY 84 and 85. Table 40 lists the loans guaranteed in FY 84. No loans were guaranteed in FY 85.

First-Time Loans. REA approved loans for 4 first-time borrowers in FY 84 and 11 first-time borrowers in FY 85, as shown in Tables 41 and 42.

Rescissions. During FY 85 there were 75 rescissions of prior-year loans: 49 REA loans totalling $24.7 million and 26 RTB loans totalling $19.4 million. Four loan guarantee commitments totalling $61.0 million were terminated, bringing the rescinded total to $105.1 million.

Advances and Construction. Through September 30, 1985, borrowers had received advances under the REA loan program totaling $5,998,403,452. Approved REA loans, RTB loans and loans guarantee commitments provided for construction and improvement of 935,399 miles of line and new or improved dial service to 5,500,006 subscribers. Progress in the program during the last two years is shown in Table 43.

Cumulative repayments on REA loans are shown in Table 44. Cumulative figures for construction loans and advances are shown in Tables 45 and 46.

Table 38. Telephone Loans by State
FY 84

| Locality | REA Loans | | Rural Telephone Bank Loans | |
|---|---|---|---|---|
| | No. | Amount | No. | Amount |
| United States | 71 | $228,559,000 | 56 | $143,027,850 |
| Alabama | 1 | 3,137,000 | | |
| Alaska | 4 | 37,854,000 | 3 | 5,160,750 |
| Arizona | | | 1 | 903,000 |
| California | 1 | 2,450,000 | 3 | 6,919,500 |
| Colorado | 1 | 90,000 | 2 | 3,399,900 |
| Florida | 2 | 5,235,000 | | |
| Idano | 1 | 957,000 | 1 | 570,150 |
| Illinois | 3 | 4,112,000 | | |
| Indiana | 1 | 590,000 | 1 | 1,375,500 |
| Iowa | 4 | 4,591,000 | 5 | 6,105,750 |
| Kansas | 4 | 10,727,000 | 2 | 1,962,450 |
| Kentucky | 1 | 2,044,000 | | |
| Louisiana | 1 | 1,569,000 | 1 | 2,485,350 |
| Maine | 2 | 3,396,000 | 1 | 1,334,550 |
| Michigan | | | 1 | 557,550 |
| Minnesota | 5 | 6,157,000 | 7 | 10,695,300 |
| Mississippi | | | 3 | 5,386,500 |
| Missouri | 1 | 10,823,000 | 1 | 2,007,600 |
| Nebraska | 1 | 2,179,000 | | |
| New Hampshire | | | 1 | 2,520,000 |
| New Mexico | 4 | 18,056,000 | | |
| New York | 2 | 1,700,000 | | |
| North Carolina | 2 | 7,414,000 | 3 | 24,838,800 |
| Ohio | 2 | 1,160,000 | 1 | 1,748,250 |
| Oklahoma | 3 | 5,589,000 | 5 | 12,402,600 |
| Oregon | 1 | 177,000 | 1 | 701,400 |
| Pennsylvania | 3 | 5,151,000 | 3 | 2,559,900 |
| South Carolina | 2 | 18,268,000 | 3 | 25,715,550 |
| South Dakota | 6 | 16,684,000 | | |
| Tennessee | 1 | 11,607,000 | 1 | 1,758,750 |
| Texas | 2 | 7,675,000 | 3 | 12,728,100 |
| Utah | 2 | 2,087,000 | 1 | 2,305,800 |
| West Virginia | 1 | 6,300,000 | | |
| Wisconsin | 6 | 10,210,000 | 3 | 3,357,900 |
| Guam | 1 | 20,570,000 | 1 | 3,526,950 |

Table 39. Telephone Loans by State
FY 85

| State | REA Loans | | Rural Telephone Bank Loans | |
|---|---|---|---|---|
| | No. | Amount | No. | Amount |
| United States | 74 | $224,589,000 | 52 | $167,773,200 |
| Alabama | 6 | 20,168,000 | 4 | 27,408,150 |
| Alaska | 2 | 12,433,000 | 3 | 3,356,850 |
| Arizona | 1 | 7,295,000 | | |
| Arkansas | 3 | 5,833,000 | 2 | 1,258,150 |
| California | 2 | 5,829,000 | 1 | 423,150 |
| Florida | | | 1 | 3,028,200 |
| Georgia | 3 | 8,454,000 | 4 | 18,161,850 |
| Idaho | 3 | 3,822,000 | 1 | 577,500 |
| Iowa | 3 | 1,098,000 | 5 | 10,101,000 |
| Kansas | 4 | 8,150,000 | | |
| Kentucky | 1 | 17,251,000 | | |
| Louisiana | 1 | 970,000 | 2 | 8,038,800 |
| Maine | 1 | 3,285,000 | 1 | 5,303,550 |
| Michigan | 2 | 5,624,000 | 3 | 16,604,700 |
| Minnesota | 8 | 21,258,000 | 1 | 1,043,700 |
| Mississippi | 2 | 7,541,000 | | |
| Montana | 2 | 17,673,000 | 1 | 431,550 |
| New Mexico | 1 | 2,253,000 | | |
| New York | | | 4 | 5,528,250 |
| North Carolina | 1 | 1,575,000 | 3 | 6,248,550 |
| North Dakota | 6 | 27,374,000 | | |
| Oklahoma | | | 1 | 1,945,650 |
| Pennsylvania | | | 2 | 20,224,050 |
| South Dakota | 5 | 8,567,000 | | |
| Tennessee | 4 | 16,519,000 | | |
| Texas | 7 | 14,661,000 | 3 | 5,082,000 |
| Vermont | | | 1 | 509,250 |
| Virginia | | | 1 | 3,004,050 |
| Washington | | | 1 | 5,558,700 |
| Wisconsin | 6 | 6,956,000 | 6 | 8,918,700 |
| Puerto Rico | | | 1 | 15,116,850 |

Table 40. Telephone Loan Guarantees
FY 84

| State | No. | Amount |
|---|---|---|
| United States | 4 | $105,099,000 |
| Florida | 1 | 28,930,000 |
| Georgia | 1 | 26,138,000 |
| Missouri | 1 | 23,800,000 |
| Texas | 1 | 26,231,000 |

Table 41. First-Time Telephone Borrowers: FY 84

| Borrower | REA Amount | RTB Amount | State |
|---|---|---|---|
| Lincolnville | $1.6 million | - | Maine |
| Mahanoy and Mahantango | $3.8 million | - | Pennsylvania |
| Home of Grand Meadow | $1.2 million | $1.2 million | Minnesota |
| Winn | - | $0.6 million | Michigan |

Table 42. First-Time Telephone Borrowers: FY 85

| Borrower | REA Amount | RTB Amount | State |
|---|---|---|---|
| Redfield | $1.4 million | $837,900 | Arkansas |
| Blountsville | $4.9 million | - | Alabama |
| Potlatch | $1.2 million | $577,500 | Idaho |
| National of Alabama | $2.7 million | $270,900 | Alabama |
| Papago Tribal | $7.3 million | - | Arizona |
| BPM | $7.1 million | - | Mississippi |
| Conestoga | - | $11.9 million | Pennsylvania |
| Enterprise | - | $ 8.3 million | Pennsylvania |
| C, C & S | $2.2 million | $14.8 million | Michigan |
| Louisiana Western | - | $ 5.7 million | Louisiana |
| Deep River Mutual | $293,000 | $91,350 | Iowa |

Table 43. Annual Telephone Loan Advances and Construction Progress

| | FY 84 | FY 85 |
|---|---|---|
| Advances | | |
| REA Loans | $187,833,844 | $135,926,804 |
| RTB Loans | 90,450,549 | 72,675,257 |
| Loan Guarantees | 43,470,000 | 20,903,000 |
| Route miles of line constructed or improved (estimated net) | 10,997 | 12,417 |
| Subscribers receiving new or improved service (estimated net) | 163,237 | 123,541 |

Table 44. Cumulative Repayments: REA Telephone Loans

| | FY 84 | FY 85 |
|---|---|---|
| Payments: | | |
| Principal (including payments ahead of schedule) | $1,134,903,174 | $1,242,194,614 |
| Interest | 892,200,385 | 983,934,410 |
| Payments ahead of schedule | 37,088,373 | 44,063,960 |
| Payments overdue more than 30 days | 36,147 | 20,534 |

Table 45. Telephone Loans: Cumulative Figures

| Date | Total REA Net Loans * | Rural Telephone Bank Net Loans | Loan Guarantee Commitments | Construction Authorized to Date: Route Miles of Line Constructed or Improved | Construction Authorized to Date: Subscribers Receiving New or Improved Service |
|---|---|---|---|---|---|
| 1950 - 1963 ..... | $ 990,992,987 | | | 469,805 | 1,859,873 |
| June 30, 1964 ..... | 1,078,444,387 | | | 492,700 | 1,964,601 |
| June 30, 1965 ..... | 1,167,902,734 | | | 511,956 | 2,043,900 |
| June 30, 1966 ..... | 1,266,041,761 | | | 519,156 | 2,116,895 |
| June 30, 1967 ..... | 1,380,557,341 | | | 534,200 | 2,202,030 |
| June 30, 1968 ..... | 1,499,674,227 | | | 545,493 | 2,271,874 |
| June 30, 1969 ..... | 1,623,413,120 | | | 552,927 | 2,364,493 |
| June 30, 1970 ..... | 1,746,578,450 | | | 564,771 | 2,450,421 |
| June 30, 1971 ..... | 1,870,028,433 | | | 579,233 | 2,543,516 |
| June 30, 1972 ..... | 2,002,536,718 | $ 90,954,800 | | 596,119 | 2,698,337 |
| June 30, 1973 ..... | 2,147,368,193 | 240,913,490 | | 616,274 | 2,854,530 |
| June 30, 1974 ..... | 2,287,396,227 | 397,344,290 | | 636,755 | 3,026,688 |
| June 30, 1975 ..... | 2,487,335,227 | 557,532,080 | $200,000,000 | 693,064 | 3,494,543 |
| June 30, 1976 ..... | 2,737,299,979 | 737,202,830 | 381,615,000 | 742,225 | 3,842,606 |
| Sept. 30, 1977 ..... | 3,032,569,126 | 923,744,623 | 393,873,000 | 768,097 | 4,093,482 |
| Sept. 30, 1978 ..... | 3,298,965,598 | 1,076,923,873 | 391,918,000 | 790,669 | 4,318,651 |
| Sept. 30, 1979 ..... | 3,548,961,362 | 1,207,676,173 | 311,918,000 | 815,975 | 4,497,419 |
| Sept. 30, 1980 ..... | 3,793,445,662 | 1,367,234,097 | 417,903,000 | 835,464 | 4,672,647 |
| Sept. 30, 1981 ..... | 4,032,971,525 | 1,520,511,682 | 469,946,000 | 859,457 | 4,899,384 |
| Sept. 30, 1982 ..... | 4,272,115,929 | 1,694,587,539 | 629,335,000 | 888,000 | 5,091,000 |
| Sept. 30, 1983 ..... | 4,517,363,859 | 1,860,593,433 | 673,647,000 | 905,000 | 5,219,000 |
| Sept. 30, 1984 ..... | 4,738,327,507 | 1,993,109,001 | 740,438,000 | 924,137 | 5,407,097 |
| Sept. 30, 1985 ..... | 4,938,184,501 | 2,141,439,869 | 679,454,000 | 935,399 | 5,500,006 |

* Includes direct and insured loans.

Table 46. Telephone Advances: Cumulative Figures

| Date | REA Loan Funds Advanced * | Telephone Bank Loan Funds Advanced | Loan Funds Advanced Under Guarantee | Construction Completed ** | |
|---|---|---|---|---|---|
| | | | | Route Miles of Line | Subscribers |
| 1950 - 1963 ..... | $ 792,465,840 | | | 414,271 | 1,523,406 |
| 1964 ..... | 876,695,138 | | | 431,475 | 1,626,590 |
| 1965 ..... | 957,487,449 | | | 460,141 | 1,726,359 |
| 1966 ..... | 1,039,691,323 | | | 482,005 | 1,825,861 |
| 1967 ..... | 1,142,941,570 | | | 499,179 | 1,944,334 |
| 1968 ..... | 1,242,998,913 | | | 533,559 | 2,067,025 |
| 1969 ..... | 1,348,878,422 | | | 554,190 | 2,184,575 |
| 1970 ..... | 1,484,279,069 | | | 547,322 | 2,334,511 |
| 1971 ..... | 1,621,729,749 | | | 568,051 | 2,428,868 |
| 1972 ..... | 1,754,097,487 | $ 587,923 | | 583,922 | 2,574,814 |
| 1973 ..... | 1,876,472,536 | 45,642,259 | | 603,747 | 2,725,030 |
| 1974 ..... | 1,998,530,418 | 144,350,892 | | 627,483 | 2,919,113 |
| 1975 ..... | 2,141,897,321 | 274,228,758 | $ 5,528,683 | 652,884 | 3,045,292 |
| 1976 ..... | 2,284,760,323 | 387,163,911 | 45,588,544 | 683,648 | 3,283,223 |
| 1977 ..... | 2,492,089,204 | 486,044,526 | 95,045,815 | 726,271 | 3,599,069 |
| 1978 ..... | 2,637,142,419 | 628,341,716 | 138,360,625 | 748,361 | 3,877,060 |
| 1979 ..... | 2,835,240,540 | 758,881,783 | 184,760,170 | 771,951 | 4,072,709 |
| 1980 ..... | 3,074,345,739 | 958,826,018 | 246,829,859 | 797,944 | 4,262,359 |
| 1981 ..... | 3,355,041,322 | 1,107,425,390 | 283,524,456 | 804,982 | 4,374,005 |
| 1982 ..... | 3,593,616,042 | 1,219,657,517 | 348,210,000 | 830,948 | 4,545,576 |
| 1983 ..... | 3,775,526,906 | 1,313,060,353 | 379,459,740 | 860,088 | 4,823,051 |
| 1984 ..... | 3,963,360,749 | 1,403,510,902 | 422,929,740 | 871,085 | 4,986,288 |
| 1985 ..... | 4,099,287,554 | 1,476,186,159 | 443,832,740 | -- | -- |

* Includes direct and insured loans.
** Excludes borrowers to which loans and loan guarantee commitments total less than 20 percent of total assets.

Financial Development. Total operating revenues for borrowers in 1984 amounted to $2.9 billion of which 66 percent were long distance revenues. The steady increase in revenues since 1980 has been due to upgraded service to subscribers, increased ownership of long distance lines by borrowers, and improved long distance settlement contracts. However, this trend could change in the future because of changing state and interstate requirements for settlement procedures.

Following the Administration's efforts to reduce borrowers' dependence on REA financing, the agency has encouraged borrowers to seek outside financing for plant additions. As part of this effort, the agency has continued to eliminate REA financing of headquarters facilities, terminal equipment, company vehicles and work equipment. This action stemmed from the Federal Communication Commission (FCC) proposal to deregulate new terminal equipment installed after March 1, 1981. Since it will be subscribers' responsibility rather than borrowers' to provide the appropriate telephone equipment, loan funds will no longer be needed for this purpose. The investment of loan funds in station apparatus or terminal equipment during 1984 represented 5.4 percent of the total plant in service. Thus, savings in REA loan funds in the future are expected to be on that order.

Borrower Net Worth. Borrowers' net worth increased by $301 million during 1984, and now represents 28.5 percent of total assets. As can be seen in the following table, total net worth has increased by about 257 percent during the last 10 years, and the ratio of average net worth to assets ratio has also improved substantially.

Table 47. Net Worth of Telephone Borrowers

| Year | Number of Borrowers Reporting | Total Reported Net Worth (in 000's) | Average Net Worth for all Borrowers (in 000's) | Net Worth as % Total Assets |
|---|---|---|---|---|
| 1974 | 851 | $ 723,916 | $ 850 | 22.5% |
| 1976 | 876 | 903,728 | 1,032 | 23.3 |
| 1981 | 949 | 1,781,941 | 1,877 | 25.3 |
| 1982 | 950 | 2,050,894 | 2,158 | 26.3 |
| 1983 | 950 | 2,283,957 | 2,407 | 27.3 |
| 1984 | 946 | 2,585,408 | 2,733 | 28.5 |

Borrower Plant Investment. At the end of 1984, telephone plant in service totaled $9.8 billion, an increase of $701 million for the year. This represents an investment of $2,056 per subscriber, a 5.1 percent increase over the $1,957 per subscriber reported in 1983.

Management. REA provided assistance to borrowers on loans, management, revenue requirements, regulatory matters and legislation in an effort to make the most efficient use of loan funds and preserve the security of outstanding

loans. REA placed special emphasis on helping borrowers achieve better toll settlement arrangements, more efficient management and new sources of revenue. Assistance included extensive analysis of borrower finances through the Borrower Management Profile (a series of ratios that detail borrower operations), studies of operations and maintenance for problem borrowers, and monitoring borrowers with financial conditions that could endanger loan security.

During FY 85, REA analyzed proposed changes in regulations being considered by the FCC and various state regulatory bodies that would affect borrowers. Formal comments were submitted to FCC. REA also followed structural changes taking place in the rural telephone industry as a result of the divestiture of American Telephone and Telegraph Company.

REA promoted the allocation of electromagnetic spectra to allow different technologies that might reduce costs and increase the quality and variety of telecommunications. Both terrestrial and satellite radio services have been explored, as have the uniform system of accounts and various long distance separations. REA also considered shortening the amortization period on REA loans to follow more closely the useful life of facilities and equipment.

Many borrowers are diversifying into related areas such as resale operations, provision of access service, construction of facilities-based regional networks, cable television, satellite television receive-only earth stations, cellular mobile radios, and electronic equipment. REA has reviewed numerous proposals, financial statements, market studies and contracts to ensure that loan security is preserved.

Seminars for Borrowers. Four regional seminars on engineering and management topics were held in FY 84 covering:

1. New engineering factors relating to toll interconnection with common carriers and overall network planning.

2. Application of new technology to system design, including fiber optic cables, digital switching equipment, protection methods, digital transmission techniques, and cellular fixed and mobile radiotelephone service.

3. Application of satellite technology to interexchange service and unserved remote areas.

4. Management methods that conform to new regulations of the FCC.

5. Effective financial planning after toll settlement changes.

REA provided industrywide information to the field staff through presentations given at the telecommunications engineering and management seminars and the REA national conference. In addition, REA has participated in seminars sponsored by national, regional, and state associations to assist telephone borrowers with their operations.

Certification. REA has revised procedures so that qualified borrowers can certify their own plans and specifications, engineering contracts, construction contracts, force account proposals, and close-out documents. The effort simplifies procedures and will encourage more borrowers to assume responsibility for these activities.

Standards. In the past, REA was instrumental in generating standards and specifications that led to the development of unique and innovative systems, equipment and hardware for rural telecommunications. Now, however, technological development is exploding, and REA follows a wide array of developments to assist in the application of products and technology to ensure reliable and affordable service in rural areas.

REA is spearheading an effort initiated by the Insulated Cable Engineers Association to create industrywide procurement documents for telecommunications wire and cable products. After technical differences are resolved, the standards will be consistent with procedures of the American National Standards Institute.

REA coordinated the standards community's response to the request from President Reagan's National Security Telecommunications Advisory Committee to set baseline standards on network surge protection. REA continues to work with the Institute of Electrical and Electronics Engineers, the Electronic Industry Association, the Exchange Carriers Standards Association, and other groups to increase borrower awareness of this work.

REA uses the standards, rules and regulations of national engineering and standards groups whenever possible in the development of its standards and specifications. Where there is an existing national standard that is satisfactory for REA purposes, the standard is adopted as the REA standard. One example is the adoption by REA in August 1985 of the Protection Engineers' Group industry standard for telephone station protectors. REA continues to work with national engineering and standards groups in the development of industrywide standards and specifications.

Copper Cables. One of the major activities during the past two years has been assessing technologies to extend the service life of copper telephone cables. REA borrowers have a large capital investment in copper cables that must be used and remain cost effective for many years. Digital drop and insert systems are basic tools from which future high-speed digital services can evolve. Recently, several techniques have been developed to double circuit capacity over copper cable pairs. REA continues to work with manufacturers, engineers and borrowers on useful, innovative and economic techniques. Techniques discarded in earlier years are being given another review, proven hardware is being explored for different uses, and new techniques are being studied. One old technology used briefly 40 years ago is in reuse: Power line carriers are again assisting in communications transmission.

Because of the increasingly high cost of wire line construction, radio is becoming a more viable alternative to serve subscribers within local switching centers. However, there are no primary frequency allocations for this use, and only a few secondary channels are available to mobile services. Representatives of REA, the U.S. Telephone Association, the National Telephone

Cooperative Association, the National Rural Telecom Association and the Organization for the Protection and Advancement of Small Telephone Companies have formed a Rural Radio Task Force to address the issue of using radio for local calls and to develop an industry position that will mitigate the current problems in rural areas.

A new subscriber radio system using digital technology will undergo field trial beginning in 1986 in Kansas.

Fiber Optic Systems. By the end of FY 85, 30 borrowers were operating fiber optic cable systems. The trend is toward cable containing single-mode fibers rather than multimode fibers because they permit longer repeaterless cable links, greater transmission capacity and lower cost. REA financed the first fiber optics field trial in 1979 for interoffice trunking applications. Since then the technology has made dramatic improvements in cost, range, and capacity. The reliability of light-emitting diode transmission and injection-laser diode transmission and associated digital multiplexing equipment has been satisfactory. Overall, lightwave transmission requires little maintenance and offers a high level of confidence in transmission quality. Field trials have shown that lightwave technology can provide economic, efficient, reliable service. Repeaterless operation and large bandwidth capacity help rural companies provide better service while adding flexibility for future growth.

The latest developments in lightwave technology are under study for potential inclusion in REA Specification PE-90, Totally Filled Fiber Optic Cable. REA Form 515, Telephone System Construction Contract, was revised to include standardized fiber optic cable construction to encourage reliability and cost reduction. Fiber optic systems meet needs for voice and data economically and show potential for meeting video needs, so REA expects even greater use in the future.

Satellite. In the fall of 1984, REA completed a sample rural toll traffic survey and distributed it to interested manufacturers on behalf of the Rural Coalition to consider developing a rural satellite system. Only class 4 switches were targeted in the survey because they would be the most likely candidates to justify an earth station and toll trunk linkage to a satellite. In February 1985 Hughes Communications, GTE Spacenet and Ford Aerospace presented proposals to the Rural Coalition. However, it was the judgment of coalition representatives that none of the three proposals would be able to haul rural roll traffic at sufficiently low cost. As a result, the committee recommended that rural companies concentrate on developing terrestrial regional toll systems instead. Nevertheless, some individual companies might find a satellite system economical.

High Resistance on New Telephone Sets. REA studied several potential solutions to the problem of high resistance on telephone sets although no recommendations were made by the end of FY 85.

Depreciation Rates. REA has been collecting data on plant depreciation rates for various classes of equipment in order to revise the rates used for engineering purposes in the Telecommunications Engineering and Construction Manual, Title 218. The five largest holding companies submitted

account-by-account data to USTA, and General Telephone developed a computer program to summarize the data. From this, REA extracted data on REA borrowers and developed printouts describing area characteristics, national composite information and composite plant information. The composites indicate that current rates vary from 2.31 percent to 22.11 percent with an overall average of 6.10 percent.

Subscriber Loop Plant Survey. On April 17, 1985, REA began a subscriber loop plant survey that will take about a year to complete. It will provide the first benchmark for rural telephony in 16 years. Since 1969, the subscriber base has more than doubled, from just over 2 million to almost 5 million, and exchanges have increased 35 percent, from 4,400 to 5,900. The 1,000 loops selected for the survey are from REA-financed exchanges within the contiguous United States in order to be consistent with the 1969 survey. The location and number of loops to be tested are shown in the following table.

Table 48. REA Loop Survey: Number Selected

| | 1969 | 1984 | Change |
|---|---|---|---|
| Southeast | 240 | 250 | +10 |
| Northeast | 161 | 244 | +83 |
| Southwest | 217 | 214 | -3 |
| North Central | 262 | 207 | -55 |
| Western | 120 | 83 | -35 |
| | 1,000 | 1,000 | |

As the table indicates, there has been a shift in subscriber size by area over the years, and the faster growing areas have been assigned more tests. The northeast area grew from 381,100 to 1.3 million subscribers, an increase of 243 percent, while the north central area grew at 83 percent, from 514,600 to 940,400 subscribers.

The survey asks for information on network interface devices, digital carriers, digital switching and remote switches which did not exist in 1969. Information is also sought on protection, grounding, fire equipment, equal access, vertical services, circuit noise, power influence, and loop current. Results of the survey are expected to be useful to improve training of engineering and management personnel; improve quality of transmission and service; identify physical plant composition, transmission characteristics, noise and crosstalk; develop economic analyses; and apply new products.

Digital Switching. REA borrowers are installing class 5 digital switching equipment at a rate of about two per week. In FY 84, 156 offices changed to digital switches. Out of the 6,000 offices operated by REA's borrowers, 1,100 are now digital. Unit prices continue to remain attractive as a result of increased competition, and two more domestic switch manufacturers are completing tests that may gain acceptance in 1986.

REA has finished the first phase of an analysis of the performance of the digital switching systems now in service. Printed circuit board failure reports have been analyzed, and the failure rate design objective of 0.5 percent per month is being achieved on an annual basis. Equipment manufacturers are improving their systems' self-diagnostic capabilities.

Shield Bonding Connectors. A comprehensive field performance evaluation of shield bonding connectors has been initiated. Loss of shield continuity either to ground or adjacent cable shields could result in cable damage or noisy circuits. Manufacturers are assisting in field tests.

Rural Telephone Bank. Retained earnings and patronage capital at the beginning of FY 84 totaled $68 million. During FY 85, interest income totaled nearly $103 million of which $74,000 came from investments. Expenses incurred amounted to $75 million leaving net income at $28 million. After deducting a return of nearly $8 million on Class A stock, a patronage refund of nearly $11 million and dividends of $138,000 on Class C stock, the balance of net income amounted to $9 million. Retained earnings and patronage capital were thus $77 million at the end of FY 85.

Sale of Stock. The government purchased $30 million of Class A stock for the Rural Telephone Bank during FY 85, bringing the cumulative total of Class A stock purchases to $420 million. Bank borrowers purchased $2 million in Class B stock, bringing the cumulative total to nearly $134 million. Cumulative Class C stock amounted to $1.7 million. The stock's history is shown in Table 49.

CATV. The Rural Communication Development Fund, established pursuant to the Secretary of Agriculture's Memorandum No. 1988 of May 22, 1979, transferred certain financing authorities under the Consolidated Farm and Rural Development Act to REA for community antenna television services in rural areas. In 1981, because sufficient capital was available from private sources to accomplish this goal, these authorities were terminated. REA now administers only those loans made prior to 1981. Through 1985 cumulative insured or direct loans of $25.4 million and $8.6 million in guarantee commitments were still outstanding. Principal outstanding is $20.5 million.

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Table 49. Rural Telephone Bank Stock
(rounded to thousands)

| | Class A Stock | | Class B Stock | | Class C Stock | |
|---|---|---|---|---|---|---|
| | Amount Cumulative | Dividend Annual | Amount Cumulative | Dividend Annual | Amount Cumulative | Dividend Annual |
| 6/30/72 | $ 30,000 | $ 1 | $ 133 | $ - | $ 460 | $ - |
| 6/30/73 | 60,000 | 369 | 5,600 | - | 525 | - |
| 6/30/74 | 90,000 | 1,520 | 11,292 | 115 | 533 | 21 |
| 6/30/75 | 120,000 | 2,318 | 20,639 | 546 | 545 | 27 |
| 6/30/76 | 150,000 | 2,914 | 25,022 | 1,293 | 546 | 27 |
| 9/30/76 | 157,500 | 791 | 25,718 | 2,147 | 546 | 34 |
| 9/30/77 | 187,500 | 3,647 | 30,666 | - | 546 | - |
| 9/30/78 | 217,500 | 4,260 | 39,290 | 2,948 | 547 | 33 |
| 9/30/79 | 247,500 | 4,874 | 45,739 | 3,677 | 548 | 33 |
| 9/30/80 | 277,500 | 5,502 | 57,867 | 4,572 | 548 | 36 |
| 9/30/81 | 300,000 | 5,951 | 64,090 | 5,681 | 1,377 | 38 |
| 9/30/82 | 330,000 | 6,448 | 68,957 | 6,938 | 1,448 | 96 |
| 9/30/83 | 360,000 | 6,857 | 72,464 | 6,403 | 1,620 | 101 |
| 9/30/84 | 390,000 | 7,441 | 77,704 | 8,805 | 1,730 | 113 |
| 9/30/85 | 420,000 | 7,966 | 80,648 | 10,628 | 1,730 | 138 |
| TOTAL | $420,000 | $60,859 | $80,648 | $53,753 | $1,730 | $697 |

# APPENDIX A

This appendix includes a list of the publications and forms issued by REA during FY 84-85.

Publications:

- REA Field Directory
- REA Forms Catalog
- Bulletin 1-1, Statistical Report, Rural Electric Borrowers
- Bulletin 43-5 and Supplements No. 1, 2, 3, and List of Materials Acceptable for Use on Systems of REA Electrification Borrowers
- Bulletin 61-16, Guide for the Economic Evaluation of Distribution Transformers
- Bulletin 62-12, Guide Specifications for Steel Pole Structures
- List of REA Electric Borrowers
- 45th Annual Report of Energy Purchased by REA Borrowers
- Index of Electric Publications for Borrowers

  EOM-1, Guide for the Preparation of Electric Distribution Loan Applications
- EOM-2, Guide for the Preparation of Electric Distribution Borrower's Financial and Statistical Reports
- EOM-3, Guide for the Preparation of Operating Reports - Power Supply Borrowers and Distribution Borrowers with Generating Facilities
- Bulletin 300-4, Statistical Report, Rural Telephone Borrowers
- Bulletin 344-2, Supplements No. 1, 3, 4, 5, 6, 7, 8, 9, 10 and 11, List of Materials Acceptable for Use on Telephone Systems of REA Borrowers
- Bulletin 345-65, REA Specification for Cable Shield Bonding Connectors
- Bulletin 345-85
- Bulletin 345-87
- Bulletin 345-165
- Bulletin 345-185
- 12th and 13th Annual Reports of the Board of Directors, Rural Telephone Bank

- List of Active Telephone Borrowers
- Items of Engineering Interest
- TECM 201, Issue No. 5
- TECM 341, Issue No. 2
- TECM 451-2, Issue No. 2
- TECM 810, Issue No. 6
- TECM 901, Issue No. 3
- TOM 1800

Forms:

- Form 7, Financial and Statistical Report
- Form 12a, Operating Report - Financial
- Form 12b, Operating Report - Sales of Electricity
- Form 12c, Operating Report - Sources and Distribution of Energy
- Form 12d, Operating Report - Steam Plant
- Form 12e, Operating Report - Hydro Plant
- Form 12f, Operating Report - Internal Combustion Plant
- Form 12g, Operating Report - Lines and Stations
- Form 12h, Operating Report - Annual Supplement
- Form 12i
- Form 397g, Performance Specification for Subscriber Line Concentrators
- Form 479, Financial and Statistical Report for Telephone Borrowers
- Form 479c, Allowable Distribution of Capital (Under July 1962 Mortgage)
- Form 479g
- Form 726, Checklist for Electric Loan Application